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HUMAN EFFORT and HUMAN WANTS

An Interpretation of Economic Activity
in Relation to Human Life

By

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the Railroads," "Railroad Freight Rates in Relation to the Indus-
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Flow of Value"



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FOREWORD

A VISITOR to the Metropolitan Museum of Art happening to turn into the First Greek room, found a bevy of school girls listening to an instructress, and he yielded to the impulse to listen himself.

He heard the story of Schliemann. The boy when told of Ancient Greece at his father's knee said that there still must be traces of Troy, and when eight years old received his father's consent to look for them when he became a man. Dire family misfortune compelled him when a lad of fourteen and for five years thereafter to work in a grocery from five o'clock in the morning until eleven o'clock at night. A miller's drunken son, expelled from college but retaining his love for Greek, was wont to wander into the grocery and recite the *Odyssey*. The entrancing cadences awakened the desire of the boy to learn the Greek language and renewed his determination to search for Troy and Mycenæ. The stern apprenticeship led to a prosperous career. It gave opportunity in his early middle age to study Greek and enabled him just before reaching fifty to retire from business. Then he devoted his time, energy and fortune to the fulfilment of the desire of his childhood and his youth. The excavations inaugurated by him little more than fifty years ago have vastly extended our acquaintance with the life of the ancient Greeks and their works of art.

When the group he had joined unbidden went to the next room the visitor hesitated to accompany them. The reflection that he was an intruder gave rise to an inspiration. He went to the desk in the entrance hall, confessed his

eavesdropping, and asked if it were possible that he could have an instructor take him throughout the museum. "Why, yes," was the reply. "An instructor all to myself, who will interpret the meaning of everything in every room and thus give me an outline of the development of art?" "Yes, certainly." The stipend was so small that it is not mentioned here.

He was assigned to an instructor, a Professor of Art and the History of Art, and an artist herself. In the hours accorded from time to time as they could be arranged she guided him from the beginnings of art in Egypt throughout its development in Greece, Rome, and Byzantium, from its feeble recrudescence in the earlier Christian era throughout the Renaissance, and the succeeding periods in Italy, the Netherlands, France, England, the United States, and concluded with contemporary American sculpture. She guided him, but there was no semblance of the guide as she selected the typical and noteworthy and conveyed clearly and simply, with exquisite choice of words, the meaning of statue, painting or bit of architecture. In their presence her appreciation was manifest as though anew. And she never hesitated in illuminating reply to every one of hundreds of questions.

Throughout this treat of a lifetime that which made the most vivid impression was this. The art of the earlier centuries of the Christian era was devoted to representations of Biblical subjects, then to depicting personages of note, and in time to the portraits of those who could pay for them. For hundreds of years there was concentration upon the portrayal of the human figure whether personification of deity or saint or representation of a living person. Little attention was given to the surroundings which were regarded as mere symbols of the visible world. In the sixteenth century artists began to introduce bits of naturalistic landscape as accessories, painting them in from more or less

definite recollection or from imagination. Artists of succeeding eras took the trouble to go out and look at a landscape and to paint it from memory after returning to their studios. It was not until the nineteenth century that painters studied nature intimately. About 1830 a colony of artists known as the Barbizon school, because of their residence in the village of Barbizon, found in the simplest aspects of their surroundings inspiration for their work. Highly as their pictures are prized to-day, they were then so far in advance of their time that they suffered deprivation: there were even cases of madness and suicide. The Barbizon school was succeeded about 1870 by the impressionists who lived in the out-of-doors, painting what they saw when they saw it and as they saw it. The impressionists differed from all artists who had preceded them in that they studied and sought to show the effects of light. But they paid more attention to depicting light than the objects upon which the light fell. One of them painted the cathedral of Rouen many times in one day saying that the change of light made it a different cathedral each time. Then came the neo-impressionists to whom light was everything and structure nothing.

How like the development of the science of economics, thought the visitor. For centuries economists in their libraries spun the web of their impressions, recollections and circumvolutions. Then there were the great Englishmen who observed in the world and wrote in their libraries. The work of Adam Smith, John Stuart Mill and Ricardo endures, but evolution has brought changes in industry and commerce as in all institutions. Writings on economics were colorless until the cataclysmic changes of the industrial revolution accentuated the contrast between poverty and riches. Then came the emotional outpourings in which appeal to sentiment outweighed understanding of the eco-

conomic transition. During the last half century there has been a cleavage between those who have developed theories, abstruse and recondite, of the economic organization, with little consideration of the actual effect of its working upon the life of human kind, and those who have exalted human nature in disregard of the economic structure and its working. Although the cathedral at Rouen was of varying aspects under the varying light, it was always upon the same cathedral that the light fell. Neither the artist who painted the structure in disregard of the light, nor the artist who painted the light in disregard of the structure, presented the whole truth. Even at this time there is on the one hand the accumulating of vast masses of data as to various phases of industry and commerce which are not presented in the light of their interwoven significance, and on the other hand the venting of passion and prejudice which seek to overthrow the industrial and commercial organization.

Although there flashed upon the mind of the visitor the analogy borne by the conflict between the painters who subordinated the effect of light and those who disregarded the structure, to the conflict between the economists who discuss minutiae without consideration of the effect upon human life and those who discuss human life with little regard for the economic structure, his mind was not without preparation for the perception.

A dozen years before, while chatting at the desk of a junior partner of a publishing firm which had brought out some books on transportation written by him, the conversation turned upon the change in recent years in the presentation of the elementary principles in virtually every field of science. There was discussion of the transformation of underlying conceptions in astronomy, geology, anthropology, biology, chemistry, in medicine and surgery, upon the modern historical method as applied to the development of lan-

guages, customs, laws and religions. The junior partner said, "There is one field in which the need has not been met. If some one would write a book which would present the significance of economic phenomena conclusively and yet so simply that it would be clear to the man in the office, the store, the factory, the workshop, on the farm, in the mine, on the street, to the family in the home, and to the youth in the schools, he would be doing a great service."

The visitor gave an involuntary start. For many years he had cherished the desire to do that very thing, and had long been engaged in preparation for the attempt. When a boy he had become fascinated and saturated with the theory of evolution. As he advanced in a varied experience in the thick of the competitive struggle he was filled with the desire to understand what it all meant, and believed that application of the theory of evolution would lead to that understanding.

Years before the conversation with the junior partner, while attending the night sessions of the economic seminar of the Johns Hopkins University, he had in the intervals of a workaday existence prepared the first four chapters of what he hoped would be the book. A few years after that conversation came the opportunity to think and write. He wrote "How the World Makes Its Living," and the junior partner opened the path to its publication. In this book the evolution of the economic structure overshadows its present working. There came to him the perception that economic activity, like all else, is in continual flow, the manifestation of an unending sequence of cause and effect. After struggling to give this expression in a chapter entitled, "The Flow of Utilities and the Flow of Value," he perceived that he was trying to crowd a book into a chapter. He found it necessary to present the salient points only and to write another book. This was "The Flow of Value,"

in which he sought to present the sequence of cause and effect in determining wages, prices and profit. It also applied the theory of evolution. Evolution is useful in showing how things came to be as they are, but it is not an exposition of things as they are. While writing a section entitled "The Synthesis of Production," all that that title comprises expanded appallingly in his mind. To the completeness of the exposition was necessary another book, but he was tired and worn, and had neither the desire nor the intention to write it.

The vistas of the Metropolitan Museum of Art and the vistas of human endeavor there exemplified brought mental rejuvenation. The perception of the analogy between the contrasting schools of painters and the contrasting classes of writers on economics gave renewed stimulus. The junior partner of a dozen years before was at the head of a successful and prominent publishing firm established by him. One day the man who had been a visitor to the art museum said to the man who had been a junior partner, "Do you remember our conversation of a dozen years ago?" "Perfectly," said the publisher. "I should like to try to write the book we talked about." "By all means go ahead," said he.

This is the book. Its purpose has been indicated. Those who read it will form their opinions as to the extent to which it serves that purpose. The author has sought to dig beneath the vast mass of inherited misconceptions and prevailing misunderstandings which have almost as effectually obscured our perception of the service of economic activity in the advancement of civilization as the deposits of the centuries buried Troy and Mycenæ from the sight of living men.

The word "economics" is derived from two Greek words, "oikos," the house, and "nomos," management. Thus eco-

nomics in its original significance meant the management of the household. Living together and working together characterize the life of a family. Living together and working together characterize the life of civilization. The term economics has attained a broader significance as civilization has developed. Because of defects in human nature the life of many families is disturbed by jars, jangles, what are known as family rows. So also is the life of the members of a community, the people of a nation and the peoples of the nations deranged by strife and turmoil. But the institution of the family is the basis of our civilization. The maintenance and advance of civilization rest upon the institutions to which the intercourse between the people of a nation and the peoples of the nations give rise. As the life of a family may conduce to the intellectual, moral and spiritual as well as to the material advancement of its members so also the life of a people and of the peoples may conduce to their intellectual, moral and spiritual as well as to their material advancement. As a well ordered household promotes the welfare of its members, so also a well ordered adjustment of the processes by means of which there is ministrations to the wants of all individuals and all families promotes their welfare.

A philosopher has said that three-fourths, perhaps nine-tenths, of the troubles in this world are due to misunderstanding. Conspicuous among our misunderstandings is our misinterpretation of competition, an impelling force in all industry and commerce. Competition is from "com" which means with, together; and from "petere" which means to seek, to aim at, to strive for. Thus in its original and fundamental significance competition is not the striving whereunder one seeks advantage at the expense of another, but that striving together under which each person obtains reward for himself in the degree that he contributes

to the benefit of others and therefore to the benefit of all. If every person strove to do the best he could in the light of what constitutes the best all persons can do, there would be a diminution in family strife and in industrial and commercial strife.

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PART I

THE COURSE OF PRODUCTION, BUYING
AND SELLING

I

THE SERVICE OF MONEY

THROUGHOUT the ages it would seem to run that he who loves money cannot love his fellow men. In modification of this we hear that it is not the use but the abuse of money which is evil, and that money ought not to be sought for itself but for what it will buy. For whatever we buy we have to pay money and nearly everything we receive is obtained by purchase. For gifts prompted by friendship money is not received, but money must be paid for the gifts that are given. The ministration of charity has been held to be above money, but money must be paid for that which is given in charity. Ministration within the family is without thought of money but the maintenance of the family depends upon the payment of money.

Before money can be paid it must be received. How do we get money? One answer is "by selling something for money." Another answer is "by working for money." But he who works for money sells. He sells effort emanating from his body and his brain, and he receives money in payment.

Under the conditions of civilization the wants of any person cannot be met entirely by his own unaided efforts. The wants of every person are met by the results of the efforts of others. In order that human existence may be maintained the wants of the body must be met. The life worth living craves ministration to the intellect, the emotions and the spirit. Each person buys or there must be bought for

him the results of the efforts of others in the form of the things and services which meet these wants.

In meeting the manifold wants of mankind the efforts of different persons are applied in various proportions in various ways. Those who contribute toward meeting the wants of others receive of the results of the efforts of others which meet their own wants. The continual exchange of the results of effort is effected by the continual paying of money and the continual receiving of money. Money is an instrumentality which serves the ministration of man unto man.

II

THE SERVICE OF PRODUCTION, BUYING AND SELLING

As human existence cannot be maintained without food, clothing and shelter, there cannot be the manifestation of human activity of any kind for any purpose without these essentials to human existence. Food, clothing and shelter are wrought of substances extracted from or growing out of the lands or the waters. Into food enter the grains, vegetables and fruits, the flesh of animals and the produce of animals. Into clothing enter fibers and the coverings of animals. Into the structures which serve for shelter enter the woods, the metals and compositions of the earth. Through the ages man has learned to give form and shape to things which serve other than these essential wants. They also are wrought of substances from the lands and waters and even from the air. At this time in the provision of food, clothing and shelter and of virtually all other things used by the peoples of civilization are utilized tools, implements, appliances, engines, machinery and structures. They are wrought of substances extracted from or growing out of the lands—the woods, the minerals and compositions of divers kinds.

Substances of the various kinds are wrought through successive stages and processes into the forms which individuals use and consume. Many persons apply their efforts in the various stages and processes of transforming substances into the things which are thus used and consumed, and into the things which are used in the processes of transformation. Many persons apply their efforts to other purposes. The

effort applied in the stages and processes from which emerge the forms of concrete things used and consumed may be broadly distinguished from the effort applied in service which is rendered directly by one person to another or the services rendered by one or an association of persons to many others. Examples of this personal service are that of the domestic which conduces to the needs and the comforts of the body, that of the physician and nurse, of those who teach, of writers, composers, musicians. The adjustment of the relations between human beings and associations of human beings effected by lawyers and the courts is service emanating from those who render it. Those whose efforts are applied in behalf of the governmental organizations render personal service to their constituents. Those who extend the range of knowledge render personal service to all among whom the results of their achievement are diffused. Those engaged in the ministration of religion render personal service.

In order that human existence may continuously be maintained and human activity continuously be manifested in the manifold ways which minister to human wants there must be the continual production of concrete things, there must be the continual rendering of personal service, and there must be the continual exchange of the results of effort thus continually produced. This continual ministration of man unto man is effected by production, buying and selling.

III

UTILITIES

As money designates in general that which passes from the buyer in payment for whatever is bought and that which is received by the seller in payment for whatever is sold, there ought to be a term for the designation in general of whatever is received when money is paid and whatever is sold when money is received. An eminent writer on economics of the last generation deplored the lack of such a term. The nearest approach to it was "goods." When in the medieval period there developed buying and selling for money, the things sold and bought were called "goods" because they were good to have, because they served the good of the possessor. When it came about that lands were sold and bought they also were designated as "goods." There were few tools and implements, and machines deserving the name were virtually unknown. Structures in which production was effected were crude and simple. But the use of the term "goods" continued even after the introduction of steam brought mill, factory and railroad. It gives somewhat of a mental strain to consider as "goods" such things as these together with mines, warehouses, office buildings and steamships, thus to classify doctors' prescriptions, surgical operations, the will drawn by a lawyer, the aria of a prima donna, a week's work of a wage earner. There has come to be a distinction between "producer's goods" and "consumer's goods" but it is a distinction difficult to preserve. These terms are utterly inadequate for the designation of all for which money is paid and for which money is received.

In recent years there has been gradual progress in the adoption of a better term based upon the perception that every thing or service sold and bought is of use. Whatever is used is utilized—utilized in ministering to the wants of the individual or in the production of that which so ministers. Payment is made and received for that utilized in production and payment is made and received for that produced. That which is utilized in production is utilized toward meeting human wants and that which is produced is utilized toward meeting human wants. Whatever is utilized is of utility. There has been easy transition from the verb to the attribute and to the use of “utility” as a noun. Hence we can say that any thing or service which is of use is a “utility.”

Certain things and services may be provided by an individual for himself, and within the household services are exchanged between the members of a family. These are utilities which are not sold and bought. In contrast to these, a thing or a service for which payment has been made or for which payment may be received may be designated an “economic utility.” As payment is made for virtually every thing or service which meets our wants and for that by means of which the thing or service has been provided, there are very few utilities which are not economic utilities. Therefore, it will suffice in general to use the simple terms, “utility” and “utilities” in the economic sense, reserving the restricted designations “economic utilities” and “non-economic utilities” for use when it is desirable to make the distinction.

Utilities are of innumerable kinds but they may be grouped in certain general classes. Here arises a difficulty inherent in the nature of things. An absolutely distinct classification may be made when the things classified are susceptible of being separated and placed in one class or

another. There is no such clear-cut distinction in the processes of what is commonly called nature. In the course of evolution one manifestation of nature so blends with another and merges into another that no classification can be exact in inclusion or exclusion. The manifestations included in any class are the result of differentiation from preceding manifestations. In the course of differentiation, before a clear distinction is attained, a manifestation of nature partakes of the characteristics of the class from which it emerges and of the class into which it blends.

One definite statement applies to all economic utilities. Whatever is sold and bought is such a utility. Anything that man uses, no matter how large or how small, is a utility. An aggregate which he uses is a utility: a component part of that aggregate which he uses is a utility: a thing or a service utilized in production is a utility and a thing or a service produced is a utility. Any thing or service that man uses, no matter for what purpose, is a utility. A thing or a service used because it is needed is a utility, and a thing or a service used because of the gratification it affords is a utility whether or not it conduces to well-being. Thus utilities may be beneficial if they promote human welfare; deleterious if they conduce to physical, mental or moral impairment. All that can be expected of a classification of utilities is that it will in the main distinguish utilities of one class from those of another, that it will be as serviceable as it can be made considering that utilities of one class merge, often almost imperceptibly, into those of another.

Such a classification may be outlined as follows:

SOURCES OF SUBSTANCE. All of the things in the form of matter which individuals and families use and consume are wrought of substances extracted from or growing out of

10 COURSE OF PRODUCTION, BUYING, SELLING

the lands and the waters. Farms, forests, mines and fisheries may be classified as sources of substance. They are utilities because they are utilized in production and because they may be sold and bought.

SUBSTANCE. Whatever is taken from source of substance to be transformed or to be utilized in the processes of transformation is substance. Thus the woods, the minerals, the grains, the fibers, the flesh of animals which is transformed into food and the coverings of animals which are transformed into clothing and other forms of use, are substances. They are utilities because they are utilized in production and because they may be sold and bought.

INTERMEDIATE UTILITIES. Substances transformed from one stage into another preliminary to the final transformation may be classified as intermediate utilities. Of such are flour, cloth, leather, logs and boards, mattes of copper, ingots and bars of steel. They are utilities because they are utilized in production and because they are sold and bought. Substances and intermediate utilities are of thousands of kinds and grades as may be ascertained by consulting the freight classifications of the railroads or the import tariffs.

There are substances which may have undergone certain processes of transformation that are consumed in the processes of transforming other utilities. Of such are the fertilizers used on farms, the fuel and lubricants consumed in the operation of engines and machinery. They may be designated as materials consumed in the processes of production.

INSTRUMENTS OF PRODUCTION. Tools, implements, appliances, engines and machinery are utilized in the production of substances and in every stage and process of their transformation and transportation. Such instruments are utilized not only in the production of concrete utilities but also in rendering personal service. In a sense the stove,

kitchen utensils and house-cleaning apparatus of the household are instruments of production. Instruments and appliances of the surgeon in a sense are instruments of production. So also are the instruments of the musician, the palette and brushes of the painter, the chisel of the sculptor, the pen or typewriter. All instruments of production are utilities because they are utilized in production and because they may be sold and bought. Such instruments are not consumed in the processes of production as are the materials requisite to their operation, nor are they transformed in these processes as are the utilities wrought by means of their utilization. They are, however, worn out as they are utilized and sooner or later must be replaced. In this sense they are consumed.

STRUCTURES. Many of the processes of producing substance are conducted out of doors. But even on farms and in forests there must be structures in which to store instruments of production when they are not in use and many of the products must be protected from the weather by being stored under shelter. Even on farms and in forests certain processes of production are better effected under cover which protects instruments and workers. In far the greater proportion the various stages and processes of transforming substances are conducted in structures which are arranged to facilitate the processes. Of such are the buildings of the mines, mills and factories and structures of the railroads. Office buildings, storage warehouses, wholesale warehouses and retail stores are such structures. Steamships may also be included in this class.

There are also structures utilized by those who render personal service. Conspicuous among these are the buildings of all educational institutions and the buildings in which people congregate for instruction, discussion, entertainment and recreation. In hospital and sanitarium there is ministration to the body, and in the church ministration to the spirit. Art galleries and museums are

structures in which there is ministration to the intellect and to the artistic sense. Buildings devoted to scientific research are structures from which emanates ministration of benefit to mankind.

Buildings erected by the governmental organizations are utilized for ministration to the wants of the people. At the extreme are the monumental edifices erected to the memory of persons or events.

Structures utilized in production are utilities in that they may be sold and bought. Like instruments of production they are not immediately consumed in the processes of production. Like instruments of production they are worn out as they are utilized and sooner or later must be replaced. In this sense they are consumed.

FINAL UTILITIES. Final utilities are those which are immediately used and consumed in meeting the wants of the individual and the family. Substances and intermediate utilities are not of avail for meeting the wants of the individual unless they are transformed into final utilities. Instruments and structures for utilization in the production of substance and in the processes of its transformation are not of avail unless from the successive stages and processes final concrete utilities ultimately emerge. Instruments and structures for utilization in the production of utilities in the form of personal service are not of avail unless from their utilization such service emerges. Thus it becomes evident that all of production is for the ultimate purpose of providing the things and services which are used and consumed by the individual and directly minister to his wants. With the exception of food and personal services which are consumed when used such utilities are susceptible of utilization throughout varying periods and therefore each measure of satisfaction afforded is a utility. Each measure of satisfaction thus afforded is an economic utility if it can be sold and bought.

An example of the confusion which may arise if it is not borne in mind that the foregoing classification is based upon the manner in which a utility is used and not upon the nature of the utility itself is afforded by land. When utilized as a farm, land is a source of substance; when utilized as a site for a manufacturing plant it is part of an instrument of production. The land upon which a dwelling is built and the portion which may surround the dwelling if utilized for the enjoyment of the occupant, is a final utility. The farmer's house and lawn are a final utility whereas his orchard and farm are a source of substance. A dwelling is a final utility to the occupant who so utilizes it, but the right to the utilization of a dwelling may be disposed of for a year, of a room for a week, of a bed for a night. In such a case the dwelling becomes an instrument of production or rather a structure utilized for production by him who sells the right for use, and the use a final utility to the buyer. Another example is provided by coal. This is a material consumed in the processes of production when the combustion is in furnace of mine, mill, factory or locomotive. It is a final utility when used in the household. Needless refinement of the analysis would disclose a distinction between coal burned in the cooking stove which is material consumed in the process of preparing food for the table and coal burned to provide warmth for the body. That which essentially characterizes a final utility is its purchase by a final buyer for the use or consumption of the individual or the family in distinction from purchase for sale or for utilization in production for sale.

HUMAN EFFORT. The application of human effort is requisite in every stage and process of the production of concrete utilities and of utilities in the form of personal service. Human effort must be applied in the preparation of the land for the growth of substance of perennial yield, and it must be applied in obtaining substances of all kinds

from the land. Human effort may be applied directly in producing substance and in processes of its transformation. In the construction and the operation of instruments of production the application of human effort is requisite. Human effort applied in personal service results in the production of utilities of personal service. Human effort is a utility in that it may be sold and bought for payment designated as wage, salary or fee.

There are final utilities such as artificial light and heat and the conveyance of passengers by trolley cars, taxicabs, railroad trains and steamships, which in a strict sense are not concrete but intangible. For the sake of convenience and to avoid confusion with utilities in the form of personal service which also are intangible they may be included in general under the designation of final concrete utilities.

Implements and munitions of war are utilities in that they are produced, sold and bought. They are for use in the destruction of lives and property. When a nation is at war it may be obliged to use such munitions and implements for the protection of the lives and the property of its people. The police use implements and munitions in the protection of persons and property and the preservation of order. Such utilities are provided by taxation, a subject which is aside from this discussion. By means of taxation are provided and maintained the country roads, the pavements of streets and the instruments and appliances utilized for the protection of persons and property from fire.

IV

THE SIGNIFICANCE OF PRODUCTION

"To produce" may, in a broad sense, be construed to mean to have ready for a possible buyer that which he may want to buy at the time when and the place where he may want to buy it. Thus the retail dealer produces the wares in his store, the doctor or lawyer, actor or musician may be said to produce the services which he sells. In extreme application the seller of real estate may be said to produce the forest, mine or farm, or the land and structures which are the subject of negotiation. In economic significance "to produce" ordinarily means to produce concrete utilities. This includes the extracting or gathering of substance from its sources and the transformation of this substance. Thus there is the production of substances, of intermediate utilities, of final utilities, of instruments of production and of the materials consumed in the processes of production. The agencies of transportation produce the intangible utilities of transportation by means of which concrete utilities are conveyed to the places where they are wanted.

All utilities whether concrete, intangible or in the form of personal service are produced by the application of productive force. Concrete utilities are produced by the application of productive force to forms of matter. The minerals have been implanted in their beds by the action and reaction in the past of cosmic forces over which man has had no control. He has no control over the essential processes of the growth of living organisms but by prepar-

ing the soil and breeding selected strains of the grains, fruits and vegetables, of the plants and of the animals of use to him, he determines in large measure the kinds and qualities of such living organisms and in large measure the volumes in which they are grown. Invention and discovery have multiplied the kinds of substances which are utilized in the production of utilities and the ways in which they are utilized. In gathering or extracting substance from its source productive force is applied to forms of matter. Each successive process of its transformation consists in the application of productive force to matter in the form in which it has emerged from the preceding process.

In virtually every stage and process of production man utilizes instruments of production. If this expression designates whatever is utilized by him in applying productive force it must include the domestic animals so utilized. The term "instrument," however, connotes not only that which is applied by man in production but that which is fashioned by him for such application. Thus a tool, implement or appliance is an instrument of production. Such instruments do no more than to enhance the power of the hand. Since the introduction of steam as power and throughout the developing use of electricity, engines and machinery have been devised, which do far more than enhance the power of the hand. Their design has been due to the brain of the inventor. Human effort is applied in their construction and the application of human effort is requisite in their operation. But it is by the energy generated by and applied by means of them that, through processes often virtually automatic, utilities are produced in manifold variety and intricacy ranging from things delicate and minute to things massive and ponderous.

Human effort is of many grades of quality and degrees of efficiency. At one extreme is the effort of the

body to which is necessary little guidance by the mind of him who exerts it. At the other extreme is the effort of the brain to the manifestation of which is necessary little exertion of the body. Between the two extremes are innumerable gradations in the proportions in which the effort of the brain and the effort of the body contribute to the production of things and services, the utilities which meet our wants. Many persons have little or no skill and training; many have specialized skill and training in particular kinds of activity; a limited number have minds of the broad grasp which enable them to survey and direct the processes of production, buying and selling in ever widening fields.

In the production of all concrete utilities is necessary the utilization of land, of instruments of production and of human effort. Land is utilized as the source of substance. Land is utilized in every stage and process of transforming substance, for land is requisite as the site for all manufacturing plants in which instruments of production and human effort are utilized. When final utilities emerge from the final processes of manufacture they must be assembled and sold. In the assembling, storing and selling of final utilities at wholesale and at retail is necessary the utilization of land, of instruments of production and of human effort.

Substances must be conveyed from the place of production to the place of initial transformation; intermediate utilities must be transported from one place of transformation to another and to the place of transformation into final utilities. Final utilities must be conveyed from the places of final transformation to the wholesale establishments and from the wholesale establishments to the retail establishments. In this conveyance are utilized wagons, trucks and vessels, but the principal agencies of transportation in the United States are the railroads. In

providing the utilities of transportation the railroads utilize land, instruments of production and human effort.

In the successive stages and processes of transformation substances are combined and recombined. Many kinds of substances which enter into food undergo little or no transformation before they are taken into the kitchen, but in the processes of preparation for the table there is combination and recombination even if no more than the simplest materials are used. In the preparation of clothing substances are combined and recombined. Even if the material be unadulterated cotton or wool or silk or leather, it is treated with dye-stuffs and there are buttons and linings. In the construction of dwellings and of the things of use therein, in the construction of all tools, implements, engines and machinery and of all structures, substances are combined and recombined. Substance of one kind is transformed into intermediate utilities of many kinds and substances of different kinds are combined in transformation into intermediate utilities of one kind. Intermediate utilities of one kind are transformed into intermediate utilities of different kinds and intermediate utilities of different kinds are combined in transformation into intermediate utilities of one kind. Intermediate utilities of one kind are transformed into final utilities of different kinds and intermediate utilities of different kinds are combined in transformation into final utilities of one kind. In the construction of instruments of production substances throughout successive processes of transformation are combined and recombined.

Personal services are the result of the application of effort by those who render them. But personal service of every kind involves the use of concrete utilities. All persons rendering personal service must have the concrete utilities indispensable to the maintenance of their existence and

they must have the concrete utilities requisite to the rendering of their service.

This chapter may be thus summarized:

Cosmic force wrought the lands and the waters, implanted the minerals in their beds and gave growth to plants and animals. Cosmic force is manifested in the flow of the streams, in the winds, waves and tides, in the power generated by steam and electricity. To the extent that man utilizes cosmic force in production it is productive force in the economic sense.

Effort emanating from the body and the brain of man applied in the production of concrete utilities, intangible utilities and personal service is productive force. To the application of the productive force of human beings is necessary the utilization of the productive forces of the lands and the waters and of the productive forces generated through instruments of production.

Productive force is applied to matter in gathering and extracting substances, in their transformation through successive processes into final concrete utilities and into instruments of production utilized in these processes.

This leads to the perception that utilities may be classified in general as force-utilities and matter-utilities. Force-utilities applied to matter diverge in the various stages and processes of production and force-utilities applied to matter converge in the production of all the final concrete utilities we use and consume. To the application of force-utilities is requisite the utilization of matter-utilities. To the production of matter-utilities is requisite the application of force-utilities.

All productive force utilized in the production of concrete utilities is applied to forms of matter. Its application results in the production of utilities in the forms of matter, concrete utilities. The ultimate purpose of all pro-

duction is to minister to the wants of the human being. Final utilities serve the welfare and the gratification of the human being. Moreover their use and consumption is essential to the continuance of all production which ministers to the wants of the body, of the intellect, of the emotions and of the spirit. To the utilization of all the productive force applied or directed and controlled in its application by man is requisite the productive force emanating from man himself, the effort of the body and of the brain. The body of man is a form of matter. Into its composition enter elements from the earth, air and water. The force of the brain passes understanding but to its exertion is requisite the bodily structure and to the maintenance of the bodily structure concrete utilities are indispensable.

V

THE SERVICE OF PROPERTY—THE CONTINUITY OF PRODUCTION

IN order that utilities may be produced there must be the use and disposition of that utilized in their production and thus there must be the right to make such use and disposition. And there must be the right to use and dispose of utilities produced. The right to use and disposition is the essence of the right to property. This includes the right to sell that in which there is property. It includes the right to determine how that in which there is property shall be utilized and by whom the utilization shall be conducted. The right to property includes responsibility for the use and the disposition of that in which there is property.

If there were not definite recognition of the person or association of persons who have the right to the use and disposition of that which is utilized in production and of the utilities produced, the responsibility for production could not be fixed. There could not be buying and selling because he who buys acquires property in that for which he pays and he who sells parts with property in that for which payment is received. If the rights to property were abolished, civilization would fall into chaos.

As a rule, property in concrete utilities has been acquired by payment made for them at the time of purchase in the present or in the past. There may be the promise to make payment in the future under which may be secured the right to utilization but not the full right of property until the payment has been made. With the exception of the cases in-

creasingly rare, in which land originally obtained by governmental grant has descended by inheritance, payment has been made for property in land. Payment has been made for property in instruments of production and structures. Payment has been made for property in substances, intermediate utilities and final utilities.

Only the final utilities in existence at any given time may be bought at that time by final buyers. The stages and processes through which substances have been transformed into final utilities have required periods of time. Even utilities which have not undergone processes of transformation, such as fruits and vegetables, eggs and milk, may have been transported over considerable distances and held in storage for shorter or longer periods. When such foodstuffs are canned, preserved, salted, cured or otherwise treated they undergo processes of transformation. The grains undergo successive processes of transformation, frequently not reaching the table until weeks or months after the harvest. Months are required for the transformation of the fibers and the hides into clothing. Extended periods elapse before the woods and the metals are transformed into final utilities for the use of the individual, or into instruments of production and structures. Months and sometimes years elapse before the work of author, artist, dramatist, or composer is given the definite form which finally appeals to the many.

As final utilities are being sold by final sellers to final buyers, productive force is continually being applied in the stages and processes of producing such utilities for sale in the future. The final utilities in existence at the present are the result of productive force applied in the past. Productive force applied in the present culminates in the production of final utilities which meet human wants in the future.

It is not quite exact to say that all the various stages of the production of all utilities are simultaneously in process. The crops of one harvest must suffice until the succeeding harvest; production of many other kinds is more or less seasonal. But broadly and generally it is true that the various stages of production are simultaneously in process. Day by day as final utilities are being sold substances are being produced, substances previously produced are being transformed into intermediate utilities, and intermediate utilities previously produced are being transformed into final utilities, and day by day intermediate utilities are being transformed into the instruments of production which are utilized in all of the stages and processes of production.

Obviously there must be determined the proportions in which productive force is applied in the production of substances, of intermediate utilities, of final utilities, of instruments of production of the various kinds, the proportions in which utilities of the various kinds are produced, bought and sold. This determination is effected in the main by bargaining and competition.

VI

THE SERVICE OF BARGAINING AND COMPETITION

As a rule he who buys pays as little as he can for that which he acquires and he who sells obtains as much as he can for that with which he parts. Those who desire to buy will obtain that which they want from the sellers who will accept the least. Those who desire to sell will sell to the buyers who will pay the most. Bargaining is the negotiation between a buyer and a seller in which the buyer seeks to pay the least the seller will accept and the seller endeavors to obtain the most the buyer will pay. When two or more sellers desire to sell utilities of the same kind there is competition between sellers. When two or more buyers seek to buy utilities of the same kind there is competition between buyers. In the buying and selling of utilities of virtually every kind there is competition between both buyers and sellers.

In economic parlance "want" signifies not only that a person desires a thing or a service but that he has that in exchange for which it may be obtained. He wants it in the sense that he is willing and able to pay for it. The volume of utilities of a given kind offered for sale by buyers at a given time is the supply of that utility. The volume for which buyers are willing to pay represents the demand for that utility. The demand for utilities leads to the supply, that is, to the production of utilities.

If at any time the supply of any utility is smaller in proportion to the demand than at a preceding time, buyers will be obliged to pay more for it. When the supply is

larger in proportion to the demand, sellers will be obliged to accept less for it. Competition tends to adjust that which is paid and received for utilities of a given kind in accordance with the relations between the supply of and demand for utilities of that kind.

Buyers and sellers compete not only in the purchase and sale of utilities of a given kind but also in the purchase and sale of different grades of utilities of that kind. Moreover, as there are many kinds of utilities which serve the same purpose, there is competition in the purchase and sale of such utilities. If the supply of a utility of a given kind and grade is so small in relation to the demand that sellers demand higher and higher prices, an increasing number of buyers will purchase utilities of inferior grades or of different kinds which serve the same purpose. There are many grades of food of nearly every kind and there are innumerable kinds of food. There are many grades of clothing of every kind and there are many kinds of clothing. It is so also with dwellings and the things of use and adornment in the dwellings. Different areas of land are of different degrees of availability for different kinds of utilization and so also are the substances extracted from or growing out of these lands. Intermediate utilities and all final utilities are of many kinds and grades. Instruments of production are of many kinds and of different degrees of serviceability. There is human effort of many different grades of quality and degrees of efficiency. That which will be paid for a utility of a given kind and quality is determined not only by the relation between the supply of and demand for utilities of that kind and quality but also by the relations between the supply of and demand for utilities of other kinds. That which is paid and received for utilities is determined by the interrelations between the supply of and demand for utilities.

It is obvious that a number of persons applying their efforts in coördination can produce more utilities of a given kind than could the same number of persons working separately and without coördination. Hence have arisen organizations of employer and employees. The employer has the capacity for enlisting the efforts of others and of so directing and coördinating their efforts that utilities can be produced at such cost and in such volume that they can be sold in competition with other producers.

At this time virtually all stages and processes of production are effected by organizations of employer and employees. From the sale of the utilities produced by directing and coördinating the effort of his employees, the employer receives greater reward than he could obtain by applying his efforts individually. The employees receive not only as great but virtually always greater reward than they would otherwise receive. The employer benefits, the employees benefit, and those who buy the utilities produced benefit because of the efficiency of organization. An organization composed of employer and employees, whether the employees be few or many, engaged in any stage or process of production, buying and selling, may be designated a business organization.

By the utilization of instruments of production, productive force is applied more effectively than otherwise would be possible. Vastly larger volumes of utilities are produced in relation to the human effort which has been applied in their construction and is applied in their operation than otherwise would be possible. Business organizations producing instruments of production compete for their sale with the result that the most efficient instruments tend to displace the less efficient. The business organizations utilizing the most efficient instruments and most efficiently utilizing them produce the greatest volumes of

utilities in relation to the productive force applied and thus tend to supply more and more of the demand for utilities of the kinds which they produce. There is competition between those who have property in land for the greatest return which can be received from its utilization or as payment from others for the right to its utilization. The business organizations most efficiently utilizing land available for their purposes produce utilities in greatest volume in relation to the land utilized.

Employers provide the instruments of production, are responsible for their utilization, their repair, renewal and replacement. They provide land and structures utilized and substances in the forms in which they are utilized. They are responsible for the provision of all by means of which and to which employees apply their efforts. They are responsible for the sale of the utilities produced, and for the payment of wages to the employees.

Those who buy desire to obtain the most they can for what they pay, which is the same as to desire to pay the least they can for what they buy. This has led to the various stages and processes of production being effected by different business organizations. As those who buy pay the least they can and those who sell obtain the most they can, competition between sellers and buyers tends toward utilities of the same kinds and grades being sold at approximately the same prices under similar conditions at the same time and place. Utilities cannot continually be produced unless the prices received for them are at least sufficient to pay the costs of production. Buyers are ever striving to pay the least they can and sellers to obtain the most they can. The most efficient organizations, those who most efficiently utilize land, instruments of production and human effort, and thus produce the greatest volumes of utilities of respective kinds in relation to the productive

force applied, can sell at the lowest prices which will yield the return necessary for their continuous production. Thus they supply greater and greater proportions of the demand, the less efficient supply smaller and smaller proportions, and the least efficient are eliminated from their production.

As final utilities are ever in process of production an element of uncertainty always attends the adjustment of the volumes in process of production to the volumes for which there will be demand when they are offered for sale. Still greater uncertainty attends the relations which may exist in the future between the supply of and demand for substances in process of production, especially of the grains and the fibers of seasonal production, the supply of which must suffice until the yield of the ensuing season. The supply may become scant before the yield of the subsequent season, or it may be so abundant that stocks have not been disposed of by the time of the ensuing yield. There is uncertainty as to the relations in the future between the supply of and demand for intermediate utilities in process of production. There is uncertainty as to the demand for utilities produced by the utilization of new instruments of production, especially when they are greater in number and capacity than instruments replaced. Such uncertainty is conspicuous when they are utilized in the production of utilities of kinds which have not previously been produced.

The keenest in bargaining are those who buy utilities to sell in the future, to transform into other utilities for future sale, or to utilize in the processes of production. They canvass the sources of supply in the endeavor to buy to the best advantage, and they canvass the markets in the endeavor to sell to the best advantage. Prices of substances, of intermediate utilities and of final utilities vary at different times and places but for all utilities the production

of which is to continue must be paid prices which will at least enable the business organizations responsible for their production to pay the costs of production.

The effort of competing business organizations each in ignorance of the production of the others has often resulted in the overproduction of utilities of respective kinds which could not be sold for the costs of production. This means that an excess of productive force has been applied in the production of certain utilities and that there has been an accompanying underproduction of other utilities toward the production of which that excess of productive force might have been applied.

VII

CREDITS AND DEBITS

For every purchase there is a sale and for every sale a purchase. As the buyer receives that from which the seller parts and the seller receives that from which the buyer parts, the buyer is both buyer and seller and the seller is both seller and buyer. Each pays what the other receives and each receives what the other pays. A business transaction is an exchange. That which each pays is to his debit; that which each receives is to his credit. For whatever is sold credits are received. For whatever is bought debits are incurred. Utilities are sold, utilities are bought.

When source of substance sold and bought is utilizable in the extracting of substances such as minerals implanted by the action and reaction of cosmic force in the past, that which is sold and bought is the source of such substance and the substances contained therein. As such a source of substance is utilized that which is sold and bought is the substance extracted therefrom. When source of substance sold and bought is utilized for the growing of plants and animals, that which is sold and bought is the source of substance which may be so utilized. As it is utilized that which is sold and bought are the substances grown thereon and gathered therefrom. If plants such as the trees of the orchard, and animals such as cows, and poultry are continuously utilized that which is sold and bought is their produce, the fruits of the trees, the milk of cows and eggs of poultry. To the utilization of such sources of substance is requisite instruments of production and struc-

tures. If they have not been provided at the time of sale and purchase they must be provided before there can be utilization. If they have been provided they are included in the sale and purchase of the source of substance.

Land, instruments of production and structures utilized by a business organization engaged in any stage and process of production constitute what is usually termed the plant. They are the plant which bears the fruit of production. A plant may be sold and bought in its entirety. As it is utilized in production that which is sold and bought are the utilities of the kinds and grades emerging from the processes of production for which the business organization is responsible.

All of production, buying and selling involve the continual transmutation of credits into debits, of debits into credits. That which is bought remains to the credit of the buyer so long as he has property in it. Sources of substance, instruments of production and structures are to the credit of those who have property in them, but they are of no avail unless they are utilized in the production of utilities. Substances continually pass from the credit of those who produce them to the credit of those who transform them into intermediate utilities. They make payment which is to their debit but becomes credit to the producers of substance. Intermediate utilities continually pass from the credit of those who produce them to the credit of those who transform them into further intermediate utilities or into final utilities. They make payment which is to their debit but becomes credit to the producers of the intermediate utilities. Final utilities continually pass from the credit of those who produce them to the credit of the wholesale dealers who make payment which is to their debit but becomes credit to the producers. Final utilities continually pass from the credit of wholesale dealers to the credit of

retail dealers who make payment which is to their debit but becomes credit to the wholesale dealer. Final utilities continually pass from the credit of retail dealers to the credit of final buyers who make payment which is to their debit but becomes credit to the retail dealer.

The entire population must have final concrete utilities. As they are produced and sold the credits received from their sale pass to those who have property in that utilized in their production, or who have applied effort in their production. It follows that from the credits so received must be bought final concrete utilities for the use and consumption of those who are engaged in their production and of those who are not so engaged. This means that the debits incurred for final concrete utilities by those engaged in personal service of whatever kind, by all persons whose existence is maintained are from credits which have been transferred directly or indirectly from credits received by those responsible for the various stages and processes of the production of such utilities.

VIII

THE NECESSITY FOR A SURPLUS OF CREDITS

IF the credits received by a business organization from the sale of the utilities produced by it be no more than sufficient to enable it to incur the debits in payment for the human effort employed by it, that is, no more than sufficient to pay wages and salaries, it will not be able to incur the other debits requisite to the continuance of production. It will not be able to buy substances in the forms utilized, materials for consumption in the processes of production, nor to repair and renew instruments of production. If it have not property in the instruments of production it will not be able to incur the debits requisite for the right to utilize them. If it have not property in the land utilized by it, it will not be able to incur the debits requisite for the right to its utilization. It cannot continue in business.

Land must be kept in condition. If an organization is to continue in business it must be enabled from the credits received to incur the debits necessary to keep it in condition. Instruments of production must not only be kept in condition during the period of their usefulness, but they must be replaced when their usefulness is at an end. If an organization is to continue in business it must from the sale of the utilities produced receive credits which enable it to incur debits for wages and salaries, for substances in the forms which it utilizes them, for materials consumed in the processes of production, for the repair and renewal of instruments of production. They must afford return for utilization of land and instruments of production whether that re-

turn accrue to the organization in case it has property in the land and instruments, or whether it be paid to others who have property in them. From these credits it must also be enabled to incur debits for new instruments of production and new structures when they are needed.

The debits incurred by a business organization for wages and salaries are paid when the efforts of its employees have been applied. The debits for the forms of matter which it utilizes—for substances, intermediate utilities, or final utilities as the case may be—and for the materials consumed in the processes of production are incurred when they are bought. As utilities produced are sold from time to time, portions of the credits received must be immediately applied in the payment of the expenses thus immediately incurred in their production. Or if these immediate debits have been incurred prior to the sale of the utilities produced, portions of the credits received must be immediately applied in the payment of the immediate expenses necessary to future production. As land is utilized throughout extended periods payment is made for its utilization not from credits received from each sale of utilities but at certain intervals. Portions of the credits received from each sale accrue until the payments are due.

Likewise as instruments of production are utilized throughout longer or shorter periods, debits for their utilization are not incurred as credits are received from each sale of utilities produced but from portions of these credits which accrue until the payments are due. Moreover, portions of the credits received from the sale of utilities from time to time must be reserved in order that payment may be made for new instruments when they are needed. If this is not done the portions of the credits which thus accrue must be applied in payment of the debits incurred for the instruments when they were purchased and debits requisite to the

purchase of new instruments must be incurred from credits obtained from others and payment made for the right to their utilization.

If the credits continuously received by a business organization were just sufficient to enable it continuously to incur the debits requisite for the payment of the same wages and salaries to the same number of employees whose efforts were of the same grades of quality and degrees of efficiency; for the purchase of the same volumes of forms of matter utilized; to incur the debits requisite for the utilization of the same areas of land; for the utilization, repair and renewal of the same instruments of production, and to replace these instruments with new instruments of the same capacity, it could continue in business. If the interrelations between supply and demand did not change it could produce utilities in the same volumes, receive credits in the same amounts, and incur debits in the same amounts.

But as the population continually increases there is an increasing number of persons whose wants must be met. The volumes in which utilities are produced must increase. There must be an increase in the number of those who apply effort in production, an increase in the areas of land which are utilized, an increase in the volumes of substances, of intermediate utilities, of final utilities and an increase in the instruments of production and structures. In order that business organizations engaged in the various stages and processes of production may obtain the credits from which may be incurred the debits for the increasing factors in production requisite to supply the increasing wants of an increasing population, they must from the sale of utilities produced receive credits in greater amount than the debits expended in their production. They must receive a surplus of credits over those requisite for the incurring of these debits. This surplus is profit.

As all of the stages of production in process at a given time culminate in the production of utilities for sale in the future, it follows that if the increasing wants of the future are to be met increasing volumes of utilities must continually emerge from the processes of production. Production of the present must be adjusted to the interrelations between supply and demand in the future.

The most efficient business organizations, those producing the greatest volumes of utilities in relation to the productive force applied and the forms of matter to which it is applied, and those most successful in forecasting the interrelations between supply and demand in the future, obtain the profit continually required for the continual increase and extension of production.

Productive force tends to be applied in the production of concrete utilities in the proportions and in the volumes for which organizations engaged in their production receive credits exceeding the debits incurred. As there is a relation between the proportions and volumes in which different kinds of final concrete utilities are bought by final buyers there must be a relation between the volumes in which they are produced. As there is a limit to the wants of any person for final concrete utilities of any given kind, there is a limit to the volume in which utilities of that kind may be sold at a profit.

When productive force applied in the production of utilities of given kinds results in the securing of greater profit in relation to all that is utilized than is secured in production of other kinds, productive force tends to flow into such production. The transition is not always immediate. Lands cannot always readily be transferred from one form of utilization to another. Many instruments of production and structures designed and constructed for specialized utilization cannot readily be diverted to other utilization and often

cannot be diverted at all. Human effort of specialized skill and training often cannot readily find employment in other vocations. There is need of greater coördination and adjustment between the various stages and processes of all production, but production, buying and selling must be continuous and in the normal course the efficient in any stage and process will secure profit.

IX

THE SERVICE OF PROFIT

REFLECTION will reveal that the attainment of profit has been indispensable to the advance in the material welfare of the peoples of civilization.

Other things being equal, the greater the volumes of utilities produced by a business organization in relation to all that is utilized in the production of these utilities the greater will be its profit. But other things are not always equal. As the volumes of utilities of a given kind and grade increase in relation to the demand, the measure of credits received for each unit of utilities falls. As the volumes produced decrease in relation to the demand the measures of credits received increase. The volumes produced may be so large and the measures of credits received fall so low that the total of credits received does not equal the total of debits incurred. The volumes produced may be so small that the greater measures of credits received for each unit produced are not in their total sufficient to equal the total of debits incurred.

Those responsible for the administration of a business organization seek to incur the lowest practicable amount of debits per unit of utilities produced and to secure the greatest practicable amount of credits from their sale. Incurring the lowest practicable debits per unit of utilities produced means that there must not be paid for any factor utilized in production a higher price than the lowest for which it could be obtained. This does not mean the lowest price at which any grade of any factor could be obtained, but the lowest price at which any factor of a given grade of

effectiveness could be obtained. The incurring of larger measures of debits for advantageously situated land, for more efficient instruments of production and for employees whose efforts are of higher grades of quality and greater degrees of efficiency, may result not only in the production of utilities greater in volume and better in quality than could be produced by the utilization of inferior factors but also in the incurring of smaller measures of debits for each unit produced.

To this end there must always be the utmost practicable efficiency in the utilization of the factors of production, the most efficient utilization of land, of instruments of production, of the materials consumed in the processes, of the forms of matter which enter into the stages of production in which an organization is engaged, and of the human effort applied. This involves efficient direction and coördination of the various factors. For this the employer is responsible. The employer may be an organization of individuals who provide the land, the instruments of production and materials, the substances in the forms utilized and incur the debits for wages and salaries. A modern corporation is such an employer. Responsibility in various degrees may be delegated to various officers and employees who direct and coördinate the efforts of others, but even in such a case the corporation as employer is ultimately responsible.

The attainment of profit is the securing of credits which give command over utilities in greater measure than need be utilized in the continuing production of utilities of the same kinds and grades and in the same volume. Profit attained by a business organization enables it to increase and extend its facilities for production, to acquire more land, instruments of production increasing in number and capacity, to provide substances in the forms in which it utilizes them in greater volumes, and to enlist the efforts of a greater

number of employees. This means an increase of the productive force applied by it and of all to which it is applied in the production of utilities in a volume which increases in relation to the factors utilized in their production. Thus the organization will continually supply more and more of the increasing wants of an increasing population.

The attainment of profit by a business organization means more than this. If the credits obtained as profit are in greater proportion than requisite for the increase and extension of its facilities, the surplus of profit may be applied in the production of utilities of other kinds. Discovery leads to the utilization of new substances, to the utilization of substances in new ways and to the utilization of the constituent parts of a substance in such a way as to make all of it available. Thus waste is eliminated and utilities are produced in greater volume in relation to the substances utilized. Invention leads to the designing of instruments of production by means of which the energy generated by engines and dynamos can more effectively be applied and applied in new ways. Invention and discovery have led to the more thorough and varied utilization of the cosmic forces which act and react in man's environment. The bringing of these forces in increasing degree to serve man's ends is the principal material achievement of mankind in the last one hundred and fifty years. A comparison of the material conditions during the first one hundred and fifty years of the settlement of the American continent, with those that followed the introduction of steam and the development of electricity, and especially with the conditions of living brought about by the progress of the last half and accelerated during the last quarter of the nineteenth century makes evident the tremendous advance in the general material welfare made possible by the utilization of credits secured as profit.

While profit in its ordinary significance consists in the surplus of credits received by a business organization from the sale of utilities over the costs incurred in their production it may be used to designate the surplus of credits received by any person over the debits which he incurs for the final utilities used and consumed by himself and those dependent upon him. Thus the savings of the wage and the salary earner are of the nature of profit. They may be utilized by him in the production of utilities. An artisan working for wage may acquire a shop, engage employees, provide tools and substances and sell the utilities produced. A retail clerk may acquire the right to utilize the space requisite to the assembling, storing and sale of utilities, engage employees and buy the final utilities for the sale of which he is responsible. The success attending their efforts will depend upon the degree in which they adjust debits incurred to credits received. Or in these days when the proprietorship in business organizations is evidenced in increasing degree by shares of stock, they may invest their savings in such proprietary interest or they may invest in bonds, the evidence of indebtedness assumed by such an organization. The return which they receive in payment for the right to utilize the credits they have invested will depend upon the success of the organization in adjusting the debits incurred to credits received.

As credits are received as profit, the volume of credits augments. As profit is invested in land, instruments of production, in substances and in payment for human effort utilized in the production of utilities, the volume of credits will be further augmented if profit is secured from their sale. But profit is not always secured, loss may be sustained.

X

THE SIGNIFICANCE OF LOSS

IF that in the purchase of which debits have been incurred be sold for credits in smaller amount, loss has been sustained because the command over utilities received is less than the command over utilities which was paid. A utility in a form which remains unchanged throughout the intervening period, for example, an area of land, a plot of ground and a dwelling, a precious stone, a painting, a statue, may, if he who has property in it be not obliged to sell it, be held for an indefinite period. If at any time he can sell it for more than he has paid for it, he has secured profit. If at any time he is obliged to sell it and cannot obtain as much as he paid for it, he has sustained loss. The debits incurred at the time of purchase were determined by the interrelations between supply and demand at that time; the debits received at the time of sale are determined by the interrelations between supply and demand at that time.

Because it is from the sale of utilities produced that business organizations obtain the credits which enable them to incur the debits for all that is requisite to continuing production, utilities produced must be sold. Substances of whatever kind, intermediate utilities of whatever kind, final utilities of whatever kind, may be retained for shorter or longer periods. If the periods during which they are retained without sale be extended their production will diminish or it may cease. In order that there may be continuity in production and in buying that utilized in production there must be continuity or an approximation to continuity in the sale of that produced.

If a business organization does not from the sale of utilities produced obtain credits which reimburse the debts incurred in their production, its capacity for future production is impaired. It may continue in diminished production so long as it has or can obtain the credits from which the debts requisite to such production may be incurred, but if its loss continues until its credits and its ability to obtain credits are exhausted it can no longer incur the debts requisite to further production, and its production must cease. It can no longer pay wages and salaries nor buy substances in the forms in which it utilizes them. If it has property in the lands and instruments of production which it utilizes they must be sold for what can be obtained for them. If it does not have property in them they will revert to those who have.

Under the working of competition, this fate befalls the least efficient business organizations. If utilities of the kinds they produce are sold at lower prices by more efficient organizations, whose costs are so low that the less efficient organizations are unable to continue to supply proportions of the demand, it is for the general welfare that this fate should befall them. It is a manifestation of the struggle for existence. The business organizations which survive prove their fitness by supplying in greater measure the wants of a greater number of persons.

Business organizations which enter upon the production of utilities of new kinds and business organizations which enter anew upon the production of utilities of any kind hope to secure profit but always take the risk of sustaining loss. Their success or failure depends upon their estimate of the interrelations between supply and demand which determine the credits which can be received for the utilities they produce, and upon their ability to keep the total of debts incurred within the total of credits received.

When there is the production of utilities of given kinds in volumes so large that even the more efficient organizations cannot receive from their sale credits which exceed the debits incurred in their production, loss may be sustained by more efficient as well as by the less efficient business organizations. In such a case the more efficient organizations will be better enabled to await that readjustment under which the credits received will reimburse or exceed the debits incurred. In the meantime there is dislocation and impairment of equilibrium in the processes of production. A number of employees applying effort in all of the stages and processes which have culminated in the overproduction may be deprived of employment for a time. They will not only undergo deprivation themselves, but the dealers from whom they buy final utilities will find their sales diminishing because of the diminishing purchasing power of the wage earners who are deprived of employment. The disturbance may react throughout the various stages and processes of production of utilities of many kinds.

In the buying and selling of substances which are of seasonal production the supply of which must suffice until the yield of the ensuing season, traders buy the existing supply at the time of production with the hope of obtaining profit from time to time during the period which elapses before the ensuing supply is forthcoming. They also take the risk of loss. Thus there is speculation, for example, in wheat, corn, cotton, wool. The traders are successful or unsuccessful in the degree in which they forecast the interrelations between supply and demand which determine the credits obtainable at the time of sale for the utilities for which they have incurred debits at the time of purchase.

XI

THE ACCUMULATION OF CREDITS

CREDITS received, whether in payment for the application of effort or for the utilization of any other factor in production, or from the sale of utilities produced have been received for that which has contributed toward meeting human wants. He who has received credits is entitled to buy utilities. That is, credits received are command over utilities. They may be expended as they are received or portions of them may be retained for expenditure in the future.

If a person whose only receipt of credits is in payment for the application of his efforts continuously expends all of such credits for final utilities for the use and consumption of himself and those dependent upon him, he will not accumulate credits for expenditure in the future. He will be dependent upon the continuous application of his effort for the continuous purchase of the final utilities requisite to the continued meeting of his wants. He will be subject to the risks of unemployment, of illness, and in time will be superannuated. There are organizations which insure against such risks in return for the payment from time to time of a portion of the credits received by those who are dependent for their livelihood upon the application of their effort. There are organizations which pledge themselves in return for credits periodically paid to them to make payment of credits to the dependents of an insured at the time of his death.

If a person receiving credits in payment for the application of his effort does not need continuously to expend all

of them for final utilities he will accumulate credits. He may expend them in instalments from time to time as they accumulate, for final utilities of enduring usefulness such as a home. Or he may utilize them himself in the processes of production, buying and selling, or place them in the way of such utilization by others. As credits are so invested they are transmuted into that which is utilized in production. Debits are incurred for property in land, in instruments of production, in substances and for the payment of human effort applied in production. If credits are invested in insurance they are placed by the insurance companies in the way of such utilization from which they obtain the credits wherewith insurance is paid. The insured has the benefit of the experience and judgment of the insurance company in making investments and its guarantee of return on his investment when insurance is due.

That in which accumulated credits have been invested is to the credit of those who have property in it. So long as the credits obtained from the sale of utilities produced by means of its utilization exceed the debits incurred in their production, there is an increase in the aggregate of credits. If the credits received from the sale of utilities produced are less than the debits incurred in their production, there is a diminution in the aggregate of credits. In the continuous processes of production, buying and selling there is augmentation in the aggregate of credits as those responsible for the production and sale of utilities are efficient in the processes of production and are successful in forecasting the interrelations between supply and demand for utilities produced to the end that profit is received. There is impairment in the aggregate of credits when there is lack of efficiency in production and the interrelations between supply and demand result in utilities produced being sold at a loss. In times of peace, in the normal course of production, buy-

ing and selling, the augmentation in the aggregate of credits tends to exceed the impairment because of the greater efficiency which competition compels. Increase in the population tends toward the augmentation of credits.

Debits which have been incurred in the processes of production may be paid from credits received from the sale of utilities in the past. Or payment may be awaited for that utilized in production until utilities produced have been sold. Payment may be awaited for utilities which have passed into the possession of the buyer. If the debits incurred in production are from credits obtained from the sale of utilities in the past, the debits thus incurred are in the production of utilities for sale in the future. To the extent that debits incurred in production are not paid until credits have been received from the sale of utilities produced, credits received in the future pay for that which has been utilized in production in the past.

XII

INEQUALITY IN THE DIFFUSION OF CREDITS

IN that competition tends toward the respective stages and processes of production being effected by the most efficient it is a stimulus to efficiency in production. But in the nature of things it cannot bring about absolute equality in the diverse factors utilized in production nor in the grades of quality of the varied utilities produced.

Different areas of land are of different degrees of availability for different purposes and so also are different instruments of production and different structures. The efforts of different employers are of different grades of quality and degrees of efficiency, and the efforts of employees are of different grades of quality and degrees of efficiency. Different business organizations engaged in the various stages and processes of production are of different degrees of efficiency. The efforts of different persons applied in the various kinds of personal service are of different grades of quality and degrees of efficiency.

Substances of the same kind, intermediate utilities of the same kind and final utilities of the same kind are of different grades of quality and degrees of serviceability. Substances of the same kind from the same source may be of different grades and may be transformed into utilities of different grades. There are the choice and the inferior cuts of meat from the same animal, choice and inferior poultry, eggs and butter from the same farm. Viands range from those produced in large volumes over wide areas to those which are rare, from restricted regions often remote, and requiring elaborate preparation. Articles of apparel range from those

serviceable in protecting the body, wrought of clothing stuffs produced in large volumes over wide areas, to those which are elaborately fashioned of materials rare and delicate that often serve the purpose of ornament rather than of protection. Dwellings range from the single room in a tenement to the city mansion and the country place. Articles in dwellings range from those which serve usefulness more than adornment to those which serve adornment more than usefulness. There are works of art which serve the sole purpose of decoration and there are works of art created to embody a deep appeal and wide significance.

There are families whose members do all of the housework and there are families with a retinue of servants. There are families in quarters so cramped that they seldom can extend the simplest hospitality and there are families who give elaborate dinners and balls. There are families whose sons and daughters are obliged to go to work at an early age and there are families whose youth receive education extending throughout many years.

Is there justice or injustice in all of this disparity or are justice and injustice intermingled? Apparent and admitted imperfections in the economic organization, in the political organization, in the social organization as a whole forbid the disclaimer of much injustice in the relations between man and man. The answer to the question can perhaps be best ascertained by consideration of the conditions that would exist were all of the processes of production, buying and selling adjusted in the utmost attainable degree to the welfare of the entire population.

Of foremost importance are the indispensable final concrete utilities requisite for the use and consumption of all persons. These are wrought of substances of divers kinds and each kind is of different grades. There is not sufficient of the higher grades of substance of any kind for trans-

formation into the final concrete utilities requisite for meeting the wants of the entire population. As virtually all substance, even though from the same source, is of different grades there would be waste of the productive force necessarily applied in producing the lower grades not used. If none of the substances of the different grades of quality produced are to be wasted, they must necessarily be wrought into intermediate utilities of different grades and qualities and into final utilities of different grades and qualities.

On the one side is the aggregate of the population composed of different individuals, of different characteristics. On the other side is the aggregate of final concrete utilities of many different kinds and of many grades of each kind. Obviously the welfare of the entire population is best served if each individual receives in the greatest attainable degree not only final concrete utilities of the different kinds and in the various proportions which meet his wants but also ministrations to the health of his body and to the needs of his intellect and his emotions.

If final concrete utilities and utilities of personal service are continually to be produced, productive force must be applied in their production. Lands, instruments of production and human effort must be utilized in different proportions in the production of final concrete utilities of the various kinds which are used and consumed by all persons and in the production of the final concrete utilities requisite to the rendering of personal service of the various kinds.

The greater the volumes in which final concrete utilities of the different kinds and grades are produced in relation to the population, the greater will be the measures of such utilities available for the use and consumption of the population. The greater the proportion of the population whose efforts are liberated for application in rendering the

various utilities of personal service the greater the volumes in which such utilities may be produced and the greater the proportions in which all members of the population may receive of the ministration.

The greater the volumes in which final concrete utilities of the various kinds and grades are produced in relation to the population, the greater are the volumes in which they are produced in relation to the productive force utilized in their production. Greater volumes of production ought not to mean skimping and stinting for the sake of quantity. Utilities of even the lowest grades ought to be serviceable and wholesome; there ought not to be impure food, clothing not of reasonable durability, nor shelter and the appurtenances of shelter that rapidly disintegrate. The different members of the population buy final concrete utilities and the utilities of personal service in the order of their importance in meeting their wants. As there is a relation between the measures in which utilities of the different kinds are bought by the individuals constituting the population there must be a relation between the volumes in which they are produced.

Because from the credits received from the sale of final concrete utilities are incurred all of the debits requisite to their production it follows that the smaller the proportion of debits incurred in relation to the volumes produced, the smaller the proportion of credits that will need to be obtained from their sale.

In that those who buy pay as little as they can and those who sell obtain as much as they can, competition tends to adjust the payment for each factor utilized in production in accordance with its serviceability in production. The tendency is that as much be paid for the utilization of an area of land in one kind of production as can be obtained for its utilization in another kind of production. The tendency is

for productive force to be applied in the production of instruments of production for use in the respective stages and processes of production to the extent that as great profit can be obtained from the production and sale of instruments of one kind as from those of another. The tendency is for wages to be paid in proportion to the serviceability of those whose efforts are of different grades of quality and degrees of efficiency.

The less the waste of substance the greater the volumes of utilities which may be produced from given volumes of substance. Different business organizations may transform different grades of substances into different grades of intermediate utilities or different grades of intermediate utilities into different grades of final utilities, or one and the same business organization may transform substances of the same kinds into utilities of various kinds and utilities of the same kind into final utilities of various grades.

As every business organization seeks to obtain the greatest volume of credits in relation to the debits expended in production, it seeks to sell its utilities of the different grades for the respective measures of credits that will yield the greatest surplus over the debits. For utilities of the higher grades it will seek to obtain greater measures of credits and for utilities of lower and lower grades the smaller measures of credits which in the total will yield this surplus. Those who have received credits in larger and larger proportions can pay the larger measures of credits requisite to the purchase of utilities of the higher grades. Those who receive credits in smaller and smaller proportions pay the smaller measures of credits requisite to the purchase of utilities of the lower grades. Utilities of the lower grades such as the simple foodstuffs and simple clothing may be of service essentially as wholesome and effective as those of the higher grades.

As indispensable concrete utilities are requisite to the maintenance of human existence, to the manifestation of human activity in whatever field, it follows that debits incurred in the production of indispensable final concrete utilities enter into the cost of production of all other utilities. As less and less indispensable concrete utilities are produced, debits are incurred not only for the indispensable concrete utilities used and consumed by those applying effort in their production, but for all else which enters into their production. As indispensable concrete utilities produced in the past are used and consumed by those who apply effort in the production of the less indispensable utilities, their effort results not in the production of volumes of indispensable concrete utilities for sale in the future, but in the production of volumes of less indispensable concrete utilities for sale in the future.

In this discussion the term "indispensable final concrete utilities" has been applied in the main to food, clothing and shelter which are indispensable to the maintenance of the existence of the body. There are also concrete utilities indispensable in ministration to the needs of the body, to the wants of the intellect, the esthetic sense and the emotions, to the production of which the use and consumption of the primary indispensable concrete utilities is necessary.

The instruments and appliances of the physician and the surgeon are indispensable to their service, which at one time or another is indispensable to every person. In the production of these instruments and appliances debits must be incurred for indispensable final concrete utilities in the form of food, clothing and shelter by those whose efforts are applied in their production and debits must be incurred for the utilization of the land, instruments of production and substances utilized in their production. It is so also with the drugs and medicines prescribed in their ministration

and the remedies and lotions of various kinds and grades which are purchased without prescription. The books, instruments and appliances used in the schools and colleges are indispensable to the ministration of the teachers and their ministration is indispensable to the training of the coming generation. In their production debits must be incurred for indispensable final concrete utilities and debits must be incurred for the utilization of the land, instruments of production and substances utilized in their production. It is so also with books, newspapers and magazines which are indispensable not only in ministration to the intellect, but for the diffusion of information requisite to the adjustment of the relations between man and man including those concerned with the production, buying and selling of all utilities. It is so also with the instruments and appliances used in the research of the scientist whose achievements are diffused for the benefit of the human race.

Music, art and the drama may not be indispensable to every person, but they are indispensable to the advancing culture of a progressing civilization. In the production of the palette, canvas, brushes and pigments of the painter, the stone and chisels of the sculptor, the scenery, costumes and properties of the theater, the instruments of the musician, the type, printing presses, printers' ink and paper of the publisher, debits are incurred for indispensable final concrete utilities by those who apply effort in the various stages and processes and debits are also incurred for the land, instruments of production and human effort utilized in their production. Those who benefit by the ministration are obliged from the credits they receive to incur debits which reimburse the debits thus incurred and also for the effort of those who render the services which their utilization makes possible.

As indispensable final concrete utilities are produced in larger volumes in relation to the productive force and the

matter utilized in their production and in relation to the debits incurred in their production, there is an increase in the proportion of productive force and of matter available for utilization in the production of less and less indispensable utilities and in the production of the concrete utilities requisite to the rendering of personal service, to the service of those engaged in the professions and the arts, in extending the range of knowledge.

As production becomes more efficient, as there is the production of utilities in greater volume in relation to the debits incurred in their production, not only do the credits received by all persons give them command over utilities in greater measure and variety, but those responsible for the stages and processes of production receive greater measures of credits as profit. To the extent that profit gives command over a greater measure of utilities than are requisite for the increase of production in accordance with the interrelations between supply and demand, profit may be devoted to the purchase of utilities rare and costly. It may be devoted to supplying the population with ministration not received from the credits accruing to them under the interrelations between supply and demand. More and more is it becoming the custom for those who have received profit in large measure to devote portions of the command over utilities thus received to the endowment of institutions of learning, of research, of hospitals, art galleries and museums. Institutions thus endowed would not exist were it not for the reward obtained for the ability and capacity exerted in the production of that which has ministered to human wants from the sale of which credits have been received in measures which enable the provision of that ministration to human wants for which the recipients could not pay.

As the ultimate purpose of all production, buying and selling is to serve the welfare of the population, all of the

conditions under which production is effected, payment is made and payment is received, ought to be so adjusted as to conduce in the greatest degree to this end. The working of competition itself ought to be adjusted to this end. This means that those who apply effort in all of the stages and processes of production and those who have property in that which is utilized in production should have the opportunity to do the best they can under conditions which tend to promote and not to impair the general welfare. This means that debits should be incurred in proportion to the serviceability of that which is bought and credits should be received in proportion to the serviceability of that which is sold.

If these conditions were attained in the highest degree there would be employment for all who are employable in the ways for which their efforts are best adapted. No one who received smaller measures of credits than another would be deprived because each would receive of credits in greater measure than he could otherwise receive them. As those who received credits in greater measure would contribute in greater degree to the general welfare, greater benefit would accrue not only to them because of their greater serviceability but to all of those who benefited because of that serviceability. Those receiving credits in greater measure are enabled to incur debits in greater measure, which become credits to those who receive them in increasing degree as in greater proportion they are more widely diffused. If these conditions were attained inequality in the receipt of credits would signify equality in the relation of credits received to service rendered.

PART II

THE EVOLUTION OF PRODUCTION,
BUYING AND SELLING

XIII

ELEMENTAL PRODUCTION, BUYING AND SELLING

THROUGH production, buying and selling the human race has advanced from the life of the cave and the forest to the life of the civilization of to-day. The development has been through a tortuous course, interrupted, modified and often retarded by fighting, by the influence of the concurrent religious, political and social development. There have been periods of progress and periods of retrogression. To trace the minutiae of the development in exact accordance with its historical sequence would be an impossible task. Yet all production, buying and selling is necessarily a sequence of cause and effect. Each stage has developed from that which preceded it, and from each stage develops that which succeeds it. It may be possible to attain a clearer understanding of their present significance by presenting the successive stages through a hypothetical development illustrative and not historical, that nevertheless, is an essential exemplification of the actual development.

The theme of the opening chapter of this book was the use of money. Yet in the succeeding chapters there has been no reference to money. That which underlies all production, buying and selling, is the application of human effort. It is essential to buying and selling that credits shall be received for the results of the application of human effort which are sold and debits incurred for the results of the application of human effort which are bought. This hypothetical development will trace the essential. Payments received and pay-

ments made will continue to be expressed as credits and debits.

Let it be supposed that a race of human beings is scattered over an area of fertile soil where there are woodlands, hills containing minerals, streams, and sufficient rainfall. The race is composed of families between whom there is no fighting, all applying their efforts in the maintenance of existence. At first each family provides for its own wants by the use of its hands. Then it progresses to the use as tools of bits of stone, flaked and chipped. Each family maintaining its own existence learns to till the soil for grain of the one kind which serves as food and fibers of the one kind which serve for clothing, to breed domestic animals of the one kind whose flesh serves as food and whose hide is wrought into shoes. Each family makes the hides into shoes and weaves fibers into clothing for its members, and makes for itself the simple utensils used in the simple dwelling which it has built for itself. There is no buying and selling. Each family is self-sufficient. The right of each family to use the area of ground and house it occupies and the things it makes is respected by the other families.

It comes about that families proficient in tilling the soil or occupying more fertile soil raise more of grain than they need for themselves. Other families breed animals in excess of the number whose flesh is used for food and whose hide is made into shoes for themselves. Other families grow plants whose fibers are woven into cloth in excess of the quantity needed for themselves. Other families make utensils in excess of the number they need for themselves and members of some of the families become more proficient than others in the erection of structures used as dwellings. As each family makes articles of one kind or another in larger quantities than it requires for its own use, there is the exchange of such articles between different families. Articles

of one kind are exchanged for articles of other kinds in proportions determined by bargaining between those who buy and those who sell. Things sold and things bought are the results of productive force in the form of human effort applied to matter.

As things of one kind are exchanged for things of another kind the things bought have the exchange ratio of the things sold and the things sold have the exchange ratio of the things bought. The primitive families do not perceive that measures of the results of measures of human effort applied to measures of matter have the exchange ratio of other measures of the results of measures of human effort applied to measures of matter. As each family has property in the land it utilizes the thought of payment for the utilization of land has not arisen. All things sold and bought are indispensable to the existence of each family, of all the members of each family and therefore of the entire population.

Such of these things as respective families do not buy they continue to make for themselves.

In the course of time the families multiply and increase. Food, clothing and shelter must be provided for all members of the tribe, the numbers of which have increased. As there is greater proficiency in cultivating the soil and breeding animals, in growing of fibers and weaving them into clothing, in making hides into shoes, in devising utensils and in erecting structures, these utilities are respectively produced in volumes sufficient for all of the population by the efforts of a smaller number. There is an increasing specialization in production. The greater proportion of the members of the increasing number of families must continue to cultivate the land in the growing of the food crops and clothing stuffs but many apply their efforts entirely in handicraft, in the transformation of substances into food, into shoes and clothing, into dwellings and the utensils used therein. They ex-

change results of the productive force which they have applied to matter for the results of productive force applied to matter by others.

In order that the farmers may continue to specialize in the growing of foodstuffs and clothing stuffs and that the craftsmen may continue to specialize in the making of things of particular kinds, there must be the increasing production of utilities of each of these kinds by those who specialize in their production in order that they may pay of the surplus for the things in the production of which others specialize. Things produced to better advantage by some members of the tribe are exchanged for things produced to better advantage by others. Things of one kind exchange in certain proportions for things of other kinds. The production of each utility which enters into food, clothing or shelter for others must give to the person specializing in that production command over food, clothing and shelter produced by others.

Those who are most proficient in specialized production of any kind may receive that command over things produced by others which will enable them not only to continue to supply their own wants for these things but to transfer to others a portion of their command over these things so that their wants may also be met. They may transfer part of this command to those whom they employ in personal service which does not increase the production of food, clothing and shelter. This means that there must be the production of a surplus by the efficient producers of all utilities requisite for the support of the servants. Portions of the surplus of each efficient producer are exchanged for portions of the surpluses produced by the other efficient producers in order that the wants of the servants employed by each may be met.

Because men working together can accomplish more than

men working separately, farmers and craftsmen, as the demand for their products increases, enlist as employees those whose efforts are not needed in the families which have not advanced in production. To the employees they transfer part of that command over the results of the efforts of others which they have received in excess of that requisite to supply their own wants. The command over the results of the efforts of others transferred to employees is in payment for the application of effort which contributes to increased production.

There would be a relation between the measures of foodstuffs, clothing stuffs and the measures of the results of the efforts of the handicrafts paid for foodstuffs and clothing stuffs. Employees would have to be provided with food, clothing and shelter. The shoes provided by the shoemaker would have the ratio of exchange of food, clothing and shelter sufficient for himself, his family and his employees. The effort of his employees would have the ratio of exchange of the food, clothing, and shelter received by them. The clothing produced by the tailor would have the ratio of exchange of the food, shoes and shelter sufficient for himself, his family and his employees. The food produced by the farmer would have the ratio of exchange of the shoes, clothing and shelter sufficient for himself, his family and his employees. The effort of the employees of the tailor and farmer would have the ratio of exchange of the food, shoes, clothing and shelter received by them.

As more food, shoes and clothing were produced by organizations of employer and employees in relation to the number of persons engaged in their production, the utilities produced by each employer would give command over more of the other utilities than necessary to meet the wants of himself and his employees. The employers would receive profit. There would be food enough, shoes enough, clothing

enough and shelter enough to supply the wants of more persons than those engaged in their production.

In the long course of time the multiplying race learns to smelt copper and iron and form them into tools. At first one man or a number of men may extract the ores and work them through all the processes into the crude tool. Those producing tools must have food, clothing and shelter. With better tools more of all which enters into food, clothing and shelter can be produced. As the demand for tools of copper and iron increases, men engaged in their production enlist the efforts of employees.

Employers producing a surplus of food, shoes, clothing and shelter would invest that surplus in providing for the wants of those who made tools of copper and iron. They would buy tools produced with portions of the surpluses produced that were exchanged for them. Tools of copper and iron would have the exchange ratio of measures of food, shoes, clothing and shelter. Only the employers engaged in the production of food, shoes, clothing and shelter would buy tools. The utilities respectively produced by each employer would have the ratio of exchange not only of the food, shoes, clothing and shelter consumed by himself and his employees but also of the tools bought by him. Into the production of the tools entered the use and consumption of the indispensable utilities by those who applied productive force in the form of human effort in extracting minerals and transforming them into tools, and into their production would also enter measures of the minerals so extracted and transformed.

Employers who had invested credits in the purchase of tools would by means of their utilization produce still greater volumes of food, shoes, clothing and shelter sufficient to meet the wants of a still greater number of persons than the number who were engaged in their production and

whose efforts were requisite in the continuing production of tools. In order to dispose of the surplus there would have to be an increase in the population. Employers could enlist the efforts of a number of the increasing population in personal service of one kind or another, providing them with food, shoes, clothing and shelter in payment for their efforts. But if such production increased beyond the needs of those engaged in their production, those engaged in the production of tools, and those engaged in personal service there would be a surplus which could not be disposed of.

Because through the direction and coördination of the efforts of employees in specialized production utilities could be produced in greater volume in relation to the effort applied, the different processes of production as the population increased would more and more tend to be specialized. In the production of food would participate the farmer who tilled the soil and harvested the grain and the millers who converted the grain into flour. In the production of shoes would participate the farmers who raised the animals, the butchers who slaughtered them, the tanners who converted the hides into leather and the shoemakers who wrought the leather into shoes. In the production of clothing would participate the farmers who grew the fibrous plants, the weavers who made the fibers into cloth and the tailors who fashioned the cloth into garments. In the production of buildings would participate the foresters who cut the trees, the lumbermen who converted the trees into logs and boards, the carpenters who erected the buildings. In the production of tools would participate the miners who extracted the ores, the smelters who reduced the ores, the craftsmen who wrought the refined ores into tools.

All these persons and all their employees would need food, shoes, clothing and shelter. The grain and animals sold by the farmers would have to give them command over food,

shoes, clothing, shelter and tools. The leather sold by the tanners and the flour sold by the millers, the clothing sold by the weavers, the shoes sold by the shoemaker, the timber sold by the foresters, the logs and boards sold by the lumberman, the ores sold by the miners, the refined ores sold by the smelters and the tools sold by their producers would have to be sold for credits sufficient to provide food, shoes, clothing and shelter for the employers and employees, and tools. Utilities of each kind sold would have the ratio of exchange of utilities of each kind bought. As employees applied their efforts exclusively in a specialized stage and process of production their efforts would also have the ratio of exchange of certain measures of the utilities produced, in that portions of the credits received from the sale of such utilities would be paid to them for the application of their effort. Profit received by employers would have the ratio of exchange of measures of utilities sold for a surplus of credits over those requisite to pay for the effort of employees and all to which that effort was applied. Inasmuch as credits received as profit by employers would not be of avail unless they gave command over utilities, there would have to be the continued production of a surplus of utilities of the many kinds for which credits were received as profit by many employers. That is, there would have to be a certain equilibrium in production, and the maintenance of a certain equilibrium as production increased.

As production thus became more specialized land would be utilized for a diversity of purposes, not only as a source of substance but also as sites for the shops of the craftsmen. The utilization of land is requisite to the maintenance of all human existence but land is not an economic utility unless it can be sold and bought. Land would not be sold and bought for utilization in specialized production unless from the sale of the utilities produced credits were received which

enabled the buyer to provide all of the utilities requisite to the existence of himself and his employees, the tools used by them and to make payment for the land. The owner of land would not part with the right to its utilization unless the credits received in payment therefor would be at least equivalent to the surplus of credits he could obtain by utilizing it himself over the debits requisite for the purchase of food, shoes and clothing for himself and his employees and the tools used by them.

As the population continued to increase it would extend over wider areas. Grains of different kinds, animals of different kinds, plants yielding fibers of different kinds would be grown; woods of different kinds would be used; metals of different kinds would be wrought into an increasing variety of tools; there would be extending specialization in the processes of production. There would be business organizations of different degrees of efficiency in each kind of production, employers of different degrees of efficiency and employees whose efforts were of different degrees of efficiency and grades of quality.

The credits received by each business organization from the sale of utilities produced by it would still have to be sufficient to pay for the food, clothing and shelter of every person applying his efforts in the service of that organization. The efforts of the employees would be of differing grades of quality and degrees of efficiency. They would receive as wages credits in differing measures but the least measure of credits received by any employee in continuous employment must give him command over the indispensable final concrete utilities.

As an increasing number of business organizations produced utilities of an increasing number of kinds, it would become more convenient for buyers to have them assembled in some acceptable place where they could buy them when

they wanted them. It would also be more convenient for the producers to have them so assembled. The larger the volume of final concrete utilities produced by a business organization, the greater the number of persons whose wants for utilities of that kind could be met and thus the wider the area over which these wants could be supplied. Out of these conditions develops the merchant who sells final concrete utilities of many kinds thus relieving final buyers from the necessity of communicating with the producers of each kind and the producers from the necessity of communicating with each final buyer of the utilities produced. The credits received by a merchant from the sale of the final utilities he has bought from the manufacturer must at least give him command over the food, clothing and shelter necessary for the wants of himself and his employees and enable him to pay for the utilities bought from the manufacturer. Utilities must be produced not only to meet the wants of all applying their efforts in the processes of producing and transforming substances and of those applying their efforts in the assembling and selling of final utilities. They must be produced in volume sufficient to meet the wants of those having property in the land which is utilized, and the wants of those applying their efforts in personal service.

As utilities emerged from the places of production in volumes sufficient to meet the wants of an increasing number of persons over an extending area, there would need to be transportation from place of production to place of sale. As grain from several farms was ground by one miller, animals from several farms slaughtered by one butcher, hides from several farms tanned by one tanner, wool from several farms woven by one weaver, hides from one farm supplied to many shoemakers and cloth from one weaver to many tailors, there would be need for the transportation of substances from the place of production to the place of trans-

formation into intermediate utilities, of intermediate utilities to the place of transformation into final utilities, and of final utilities to the merchants at the places of sale to final buyers. In the stage which our hypothetical development has attained this transportation would be by means of pack horses and wagons over roads, or by boats on rivers.

The food, clothing and shelter produced by those engaged in the various processes of its production would have to be sufficient to supply the wants of those engaged in these processes including the wants of those engaged in transporting utilities, in assembling, storing and selling utilities. They would have to be sufficient to meet the wants of those engaged in making tools, erecting structures, providing pack horses, wagons and boats.

Utilities of each kind produced would still have the ratio of exchange of utilities of various other kinds. Employers would receive credits from the sale of the utilities of the respective kinds for the production of which they were responsible. Respective proportions of these credits would give command over various measures of other utilities. Respective proportions of these credits transferred to employees in payment for the application of their effort, transferred in payment for that to which their effort was applied, in payment for the tools by means of which their effort was applied and in payment for the utilization of land would give the recipients command over utilities of various kinds. The surplus of credits remaining after debits had been incurred would be profit for the employer. It would give him command over various measures of utilities of different kinds.

Without specialization and coördination and the use of tools in production and in transportation which is essentially a process of production, flour, shoes, clothing and shelter would be produced in such limited volumes in relation to the number of persons applying effort in their production that

the volumes of each of these utilities would have the exchange ratio of limited volumes of the other utilities. A given number of persons so applying their efforts would have a scant supply of these utilities. With specialization and coördination, the use of tools and means of transportation, the volumes produced by the same number of persons would so increase that a larger volume of each utility produced would have the exchange ratio of a larger volume of other utilities. A given proportion of the total volume of each utility produced would have the exchange ratio of a greater proportion of other utilities. This would be the case if the production of utilities of each kind increased in the same proportion in relation to the force applied in their production and the matter to which it was applied. As there were variations in the volumes produced, utilities of one kind would have the ratio of exchange of greater or less measures of utilities of other kinds.

Let it be supposed that at this stage of the hypothetical development the use of steam as power began. In the construction of engines and machinery, of the structures of mines, mills, railroads and steamships would be required the application of the effort of vast numbers of persons. Of the volumes of food, clothing and shelter produced, portions would have to be devoted to the maintenance of those so applying their efforts. The credits wherewith they could be maintained would be supplied from profit obtained by those engaged in the production of utilities by hand or by means of the hand tools which had been in use. When an instrument of production is installed for utilization its cost includes all of the debits incurred for all of the utilities used and consumed by those who have applied effort in its production and for the forms of matter resulting from the application of their effort. The results of productive force were embodied in forms of matter constituting the instru-

ments of production instead of in forms of matter which emerged as final concrete utilities. Credits are not received from the utilization of an instrument of production until there is the sale of utilities produced by means of its utilization.

Up to this time production has involved more or less use of fuel, and fuel has been required for warmth and the use of the household. Miners who dug coal loaded it on mine wagons which were conveyed to the mine mouth on rails of wood or of iron wrought by hand and hand tools. From the mine mouth it was carried in sacks on the backs of pack horses or in wagons or in boats on the rivers to where it was used. To the operation of engines and machinery generating and applying steam power is necessary a vast increase in the production of coal. More persons must apply their efforts in producing and conveying coal. They must have indispensable final concrete utilities. The advent of instruments of production generating and applying steam forces a redistribution in the application of effort in production. There is a readjustment in the use of land and a redistribution in the application of human effort. Meanwhile old processes of production continue to the extent that those engaged in them can receive credits for the utilities produced which give them command over the utilities they use and consume, and the utilities requisite to further production.

The inauguration of instruments of production generating and applying steam in an industrial world previously engaged in and supported by production by means of simple hand tools, means the production of greater volumes of utilities in relation to the number of persons whose efforts are applied in their production. In the production of these utilities is applied not only the effort of those who utilize the instruments but also the results of the efforts of those

who constructed them in the form of the instruments. The volumes of utilities produced by the efforts of a smaller number of persons utilizing the results of effort in the forms of the instruments of production are sufficient to meet the wants of a vastly greater number of persons. But they cannot be sold to a vastly greater number of persons unless these persons receive the credits wherewith to pay for them. If instruments of production are utilized in the production of final concrete utilities of one kind in advance of their use in the production of final concrete utilities of other kinds, many employees previously engaged in that kind of production are no longer needed. Credits from the sale of utilities produced must be received in greater proportion from those engaged in the production of utilities of other kinds. So long as the same measures of the utilities thus produced give the same command over other utilities great profit is secured by those responsible for their production. The employees who have been displaced must find other employment. In the process of readjustment many of them may suffer deprivation.

Discovery and invention lead not only to the designing of instruments of production generating and applying power in every stage and process of producing final concrete utilities but also to the producing of still other instruments of production which are utilized in these processes. Business organizations specialize in the production of constituent parts of instruments of production. This means an increasing demand for the efforts of employees in the kinds of production and the stages and processes of production which have been multiplied by the use of instruments of production. Instruments of production and the structures in which they are utilized could not have been provided had there not been produced in the past a surplus of utilities over those requisite to meet the wants of those engaged in their

production. Such a surplus was necessary for the use and consumption of those engaged in the production of instruments. Credits so invested were obtained as profit. They were so invested in the expectation of receiving credits from the sale of utilities produced by the utilization of the instruments which would yield reward for making the investment and the return of the investment by the time the usefulness of the instruments was at an end.

As new instruments were devised for utilization in the production of utilities of an increasing number of kinds and in the various stages and processes of specialized production, utilities of all kinds would be produced in greater volumes in relation to the debits incurred in the construction of instruments, for the efforts of employees, and for the forms of matter to which productive force was applied. As the increased volumes of utilities produced had the exchange ratio of increased volumes of other utilities, portions of the command over utilities thus received could be paid for the efforts of a greater number of employees, for the utilization of extending areas of land, and retained as offset to the debits incurred in the production of instruments, and as profit. There would be increasing volumes of utilities of various kinds each having the exchange ratio of greater volumes of utilities of other kinds which could be utilized not only in meeting the wants of an increasing population but for meeting in increasing degree the wants of the existing population.

XIV

DEVELOPING VARIETY OF PRODUCTION

At that stage of our hypothetical development when food, shoes, clothing and shelter, were the only utilities produced and efficient employers had succeeded in producing a surplus of utilities of each of these kinds which had the ratios of exchange of surpluses of utilities of other of these kinds, it was the supposition that the employers thus obtaining profit transferred the surplus for the support of those who rendered personal service to them, or for the support of employees who applied their efforts in the production of utilities of the same kinds. As the efforts of employees directed and coördinated by employers resulted in the production of utilities of these kinds in volumes greater than requisite to meet the wants for these utilities of all engaged in their production and of all employed in personal service, there would be a surplus of utilities of each of these kinds which could not be sold. The employers would have a surplus on their hands which would not be profit unless it could be disposed of. If a new utility were produced the surpluses of the indispensable utilities could be transferred for the support of those engaged in its production. The employers would invest their profit in the production of the new utility. They would not receive credits in return for the debits so invested until the new utilities were produced and sold.

Let it be supposed that the new utility was a first development of an instrument for measuring time. The supposititious race had observed that the shadows of a fixed object lengthen and shorten and move round the object with a certain regularity. This observation led to the construction of

a primitive timepiece, the sundial, a column of stone with a circular top, in the center of which an erect piece of stone or of wood was so placed that it would cast a shadow whose length and position indicated the time of day. The employers with a surplus of indispensable utilities would invest them in the support of craftsmen who made sundials. As the craftsmen consumed the indispensable final utilities their efforts would be applied to matter in the form of stone, transforming it into sundials. As employers continuously produced surpluses of utilities portions of them could be applied in the purchase of sundials. The production of sundials would be limited as they could be sold only to employers obtaining profit and would rarely need to be replaced.

In the course of time would be devised the clock with long wooden case and the weights which descending move the hands around the face. Only employers obtaining profit could buy such a timepiece as this. In the longer course of time would be devised the clock and the watch with springs which unwinding made the hands turn around the face. Such clocks and watches were made by craftsmen with their hands and hand tools. It required effort during a considerable period of a craftsman or a number of craftsmen to produce one timepiece. When the race progressed to the use of instruments of production generating and applying the power of steam the woods and metals would be transformed into the intermediate utilities entering into the construction of clocks and watches in large volume in relation to the productive force applied and so also in the transformation of the intermediate utilities into watches and clocks. As the debits incurred in the production of a watch or a clock, the unit of this production, decreased it could be sold for a smaller measure of credits enabling its purchase by employees.

It would be so also with less and less indispensable utili-

ties of any kind. As the measures of credits for which they could be sold decreased they could be bought by many employees as well as by employers. The supposititious race would have advanced. As the indispensable final concrete utilities were produced in volumes sufficient for the population with the application of smaller and smaller proportions of productive force, productive force would be available for the production of the less and less indispensable utilities. The greater the volumes in which concrete utilities of the respective kinds were produced in relation to the productive force applied to the forms of matter which entered into their production, the greater the number of persons whose wants for utilities of the various kinds produced would be met. Not only employers but also employees receiving credits more than sufficient for the purchase of final concrete utilities for the use and consumption of themselves and those dependent upon them could avail of personal service.

The effort of all persons applied in the production of concrete utilities must contribute to the production of such utilities in greater volumes than are used and consumed by them. Those who sell utilities emerging from the various stages and processes of production receive credits in payment for them. As all credits received from the sale of such utilities pass to those who are responsible for their production, it follows that portions of the credits so received must pass to all persons who buy such utilities. Portions of such credits pass to the employees engaged in the various stages and processes of production. If all credits received from the sale of such utilities passed to the employees and they expended all credits so received, there would not be such utilities for the use and consumption of persons in other activities, there could not be the support of any portion of the population not engaged in their production.

XV

THE UNIT OF EXCHANGE

ALTHOUGH utilities sold have the ratio of exchange of utilities bought, obviously the ratio of exchange of measures of utilities of one kind could not be expressed in terms of measures of utilities of all other kinds for which they may be exchanged. As utilities are sold their ratios of exchange are expressed by the credits received. As utilities are bought their ratios of exchange are expressed by the debits incurred. Credits received from the sale of utilities of one kind may be expended for utilities of many kinds. Credits received from the sale of utilities of many kinds may be expended for utilities of one kind. Credits received from the sale of utilities of many kinds may be expended for utilities of many kinds. Credits received from the sale of utilities at one time and place may be expended in the purchase of utilities at another time and place. There must be a unit of exchange, a unit in terms of which may be expressed credits received and debits incurred.

At many different places there are sources from which are obtained substances of the same kind and of various grades. Throughout the length and breadth of the United States are innumerable sources from which are obtained substances of innumerable kinds and grades. Substances of all of the various kinds may be sold in different proportions by the business organizations engaged in their production to business organizations at places near and remote, engaged in transforming them into intermediate utilities. At many different places there are business organizations engaged in

the transformation of substances of the various kinds into intermediate utilities which may be sold in different proportions to various business organizations at places near and far engaged in transforming them into further intermediate utilities and into final utilities. Final utilities of innumerable kinds produced at many different places may be sold in different proportions to wholesale dealers at places near and far. They may be sold by these wholesale dealers at many different places to retail dealers at many different places near and far. Final utilities may be sold to final buyers in the communities in which the establishments of the retail dealers are situated or they may be forwarded to final buyers at places near and far.

Obviously utilities of the innumerable kinds and grades produced could not be exchanged unless there is a designation in common from the standpoint of selling and buying for all utilities that are sold and bought, a designation which may be applied in common to different measures in which utilities of whatever kinds are sold and bought.

Moreover, because land, instruments of production, and structures are to the credit of those who have property in them, it follows that the designation of that credit must be in the terms in which are expressed the credits derived from the sale of the utilities produced by means of their utilization, in which are expressed the debits incurred in the repair, renewal and replacement of instruments of production and structures.

Because final concrete utilities maintain the existence and enable the application of the effort of those engaged in activity of whatever kind, it follows that the term in which is expressed the credits received for applying effort must be the same as the term in which is expressed the debits incurred in all of the stages and processes of their production.

This designation in common from the standpoint of sell-

ing and buying of all concrete utilities, of all utilities which are utilized in production, of human effort applied in production and human effort applied in personal service, the designation in which credits are expressed and in which debits are expressed, is, in the United States, the dollar. In the United States the dollar is the unit of exchange.

XVI

THE SERVICE OF SPECIALIZATION AND COORDINATION

A NUMBER of persons working together cannot accomplish more than by working separately unless the force obtained by the joint application is greater than the total of the force applied separately. There may be greater accomplishment by means of the joint application if the conditions require that the efforts be combined instead of being applied separately. For example, a number of men mowing a field with hand scythes probably would not cut more grass than that which would be cut by one man multiplied by the number of men at work. But if it is desired to push a stranded vessel into the water the joint application of the effort of a number of men is necessary. One man in a rowboat applies the oars and guides the boat. Eight men constituting the crew of a racing boat apply the oars in coördination and are guided in the application by the coxswain.

When a number of men are working at a task to the completion of which is necessary the application of effort in different steps or stages, it may be that more can be accomplished if the efforts of different men are applied in the different steps. For example, let us suppose that in an old time community there was a fire in a barn which could not be extinguished except by the carrying of water in buckets from a near-by stream and that the residents of the community hastened to offer their services. If each man were to fill a bucket from the stream, carry it to the barn and

pour the water upon the fire, not nearly as much headway would be made in extinguishing the fire as if some of the men were to fill buckets at the stream, others were to pass the buckets to yet another group at the barn who poured the water on the flames and passed the buckets back again to be filled. As much of force in the form of human effort might be applied under one method as under the other but under the second procedure far more water would be thrown upon the fire in a given time. There would be both coördination of effort and specialization of effort in extinguishing the fire. Force would be applied with greater skill, greater speed and the elimination of ineffective repetition. The test of achievement of coördination and specialization is obtained by a comparison of the results obtained thereby with the results that would have been obtained by the separate and individual application of effort.

Even before production, buying and selling developed there must have been specialization and coördination of effort by the members of a self-sufficient family. When different families produced surpluses of things of different kinds which they exchanged there was coördination and specialization among the families. Let us indulge in the fantasy that even in that first development of specialization the indispensable final concrete utilities were sold and bought by means of certificates expressed in terms of dollars. Flour, clothing, shoes and shelter would have respective ratios of exchange and these ratios would be expressed in numbers of dollars.

When different families, working separately, respectively performed all the processes of producing flour, shoes, garments or shelter, these indispensable final concrete utilities were necessarily produced in limited volumes. At a given time each family might have to its credit a number of dollars which it had obtained from the sale of such of these

utilities as it had produced but which it had not expended. An enterprising farmer might say to other farmers raising grain, "You are producing so many bushels of flour for which you receive so many dollars. With my good mill I can grind more of your grain into flour than you can. If you will produce more grain I can grind it and pay you more for the grain than you now are receiving for the flour because I can grind the grain which all of you produce into so much more flour than all of you can. I can pay you more dollars for the increased volume of grain than you now receive for the flour and can grind it into more of flour for which I can receive the dollars enabling me to pay more for the grain and have more dollars for myself."

The flour so produced by the farmers had been sold for the dollars which had the ratio of exchange of the shoes, garments and shelter requisite to meet their wants. They would not discontinue the production of flour unless for the increased volume of grain they would receive the dollars which had the ratio of exchange of greater measures of these utilities. The miller would be obliged from the sale of flour to receive the dollars which enabled him to pay dollars that would accord to the farmers the ratio of exchange of greater measures of these utilities and to have dollars remaining which had the ratio of exchange of greater measures of these utilities than he would have obtained if he had continued to grind into flour only the grain which he produced himself.

The specialized and coördinated efforts of farmers and millers would result in the production of far larger volumes of flour, measures of which would enter into the maintenance of the existence of a far greater number of persons. Whether the farmers paid the miller for grinding grain or the miller paid the farmers for the grain which he ground, measures of flour would have the ratio of exchange of other

utilities and measures of grain would have the ratio of exchange of other utilities. There would be bargaining between miller and farmer as to the proportions of the dollars received for flour which would be paid to the farmers and would be retained by the miller. At first the farmers might pay the miller for grinding the grain and sell the flour themselves but it would come about that as the miller ground the grain of many farmers he naturally would sell the flour. He would come to be regarded as the producer of flour and buyers of flour would resort to him. If there were only one miller to whom the farmers could sell all of the grain he probably would pay the farmers the least they would accept requisite to give them a greater command over utilities than they had previously received. If through this practice the miller obtained large profit others would engage as millers in the grinding of grain. Competition between farmers and between millers would tend to determine the proportions of the dollars received for flour which would be paid to the farmers and which would be retained by the millers. The least the farmers would accept would be command over utilities equivalent to that which they could obtain by grinding the grain into flour themselves. The least the miller would accept would be the command over utilities which he could obtain by raising grain and grinding it into flour.

There could not be the increasing command of increased volumes of flour over increased measures of other utilities unless other utilities were likewise produced in increasing volumes. Not only would farmers and millers desire a greater number of dollars for that which they produced, giving them a greater command over utilities of other kinds, but the families working separately in the production of the other utilities would desire a greater number of dollars giving them a greater command over utilities of other

kinds. Similar causes acting in similar ways would lead the tanner to buy hides from the farmer, the shoemaker to buy leather from the tanner, the weaver to buy fibers from the farmer, and the tailor to buy cloth from the weaver, the lumberman to buy timber from the forester and the carpenter to buy logs and boards from the lumberman. A tanner would pay more dollars for hides and the shoemaker more dollars for leather than the family had received for shoes, the weaver would pay more dollars for fibers, and the tailor more dollars for cloth than the family had received for garments. The lumberman would pay more dollars for timber and the carpenters more dollars for logs and boards than the family had received for shelter. Carpenters, millers, tanners, shoemakers, weavers, tailors, foresters, lumbermen and carpenters would pay smaller numbers of dollars for the flour, shoes, clothing and shelter, requisite to meet their wants.

By means of coördination through specialization, farmers and millers would produce more flour; farmers, tanners and shoemakers more shoes; farmers, weavers and tailors more garments; foresters, lumbermen and carpenters more shelter and its appurtenances than could be produced without this specialization and coördination.

If the population tended to increase in greater proportion than the volumes of utilities increased a number would have to diminish their consumption of utilities or would be obliged to diminish the payments made to those applying their efforts in personal service. If the production increased in greater proportion than the population there would be more flour, shoes, clothing and shelter for the entire population. The increase might be such that the women and children, who had contributed their efforts toward the production of flour, shoes, clothing and shelter when they were produced by families working separately, would no longer be obliged to apply a portion of their efforts in their production.

The women would be free for their household duties and the children enabled to grow in strength and intelligence.

So long as the same proportions of substances were transformed into the same number of measures of intermediate utilities and the same number of measures of intermediate utilities were transformed into the same number of measures of final utilities, and the same number of measures of final utilities were required to meet the wants of each person, the ratios of exchange of the flour, shoes, clothing and shelter required to meet the wants of any person would be the same.

These final utilities would have the ratio of exchange of the same number of dollars if the population receiving credits enabling their purchase increased in the same proportion as their production increased. If their production increased in greater proportion than the population they would have the ratio of exchange of a smaller number of dollars. If their production increased in a less proportion than the population they would have the ratio of exchange of a greater number of dollars. If their production increased in greater proportion than the population, those engaged in the various stages and processes of their production might buy more of these utilities for the use and consumption of themselves and their families with the dollars they received. If the population so increased that these utilities respectively had the ratio of exchange of the same number of dollars, those engaged in the respective stages and processes of their production would receive dollars in greater number from their sale to those not engaged in these processes. They could pay dollars giving command over these utilities to those engaged in personal service or they could pay dollars which would give command over these utilities to those who might engage in the production of other utilities.

XVII

DEVELOPING RATIOS OF EXCHANGE

As specialization multiplied, the processes of exchange would become more intricate and the ratios of exchange more complex. This has been indicated in the hypothetical development but it may be well to summarize the early evolution of the ratios of exchange in order to show the effect of specialization in the successive stages and processes of production from which final concrete utilities emerged.

When buying and selling was between families each producing utilities of respective kinds in excess of their own wants, final concrete utilities were exchanged for final concrete utilities; final concrete utilities were sold and bought. A measure of final concrete utilities of one kind would have the ratio of exchange of measures of final concrete utilities of other kinds. Under the fantastic supposition that they were sold and bought in terms of dollars a measure of final concrete utilities of each kind would have the ratio of exchange of a fraction of a dollar, a dollar or a multiple of a dollar. It will suffice to designate the ratio of utilities to the unit of exchange as that of dollars.

As those respectively responsible for all of the stages and processes of producing final concrete utilities of respective kinds enlisted the effort of employees, their wages would be paid, under our supposition, in dollars. Measures of final concrete utilities of each kind would still have the ratio of exchange of final concrete utilities of other kinds; the ratios of exchange would continue to be expressed in dollars. Portions of the dollars received by each employer from the sale

of the final concrete utilities for the production of which he was responsible would be paid to his employees. As these dollars were expended by the employees for final concrete utilities, the final concrete utilities from the sale of which the dollars were obtained would still have the ratio of exchange of the final concrete utilities bought by the employees. Inasmuch, however, as it was in payment for effort applied by them that the employees received dollars as wages, the effort which they applied would have the ratio of exchange of the dollars which they received. Thus final concrete utilities to the production of which an employee contributed by the application of his effort would have the ratio of exchange not only of the final concrete utilities bought by him but also of the effort of the employee. But it would be dollars received by the employers from the sale of final concrete utilities produced in the past which would have the ratio of exchange of the effort of employees applied toward the production of final concrete utilities from the sale of which the employers expected to receive dollars in the future.

As specialization so extended that different employers, each with employees, respectively became responsible for separate stages and processes from which emerged utilities that were sold to other employers for transformation, and the utilities into which they were transformed were sold to still other employers for further transformation, there would be increasing ramification in buying and selling and the ratios of exchange would become more complicated. The dollars received from the sale of substance to employers transforming it into intermediate utilities would have the ratio of exchange of the final concrete utilities used and consumed by the employer and the employees producing substance and of all requisite to its continuing production. Dollars received from the sale of intermediate utilities to employers transforming them into final utilities would have

the ratio of exchange of the final concrete utilities used and consumed by the employers and employees engaged in the transformation of substance into intermediate utilities, of the substance so transformed and of all requisite to its transformation. Dollars received from the sale to merchants of final concrete utilities would have the ratio of exchange of the final concrete utilities used and consumed by the employers and employees engaged in the transformation of intermediate utilities into final utilities, of the intermediate utilities so transformed and of all requisite to their transformation. Dollars received by the merchants from the sale of final concrete utilities to final buyers would have the ratio of exchange of the final concrete utilities used and consumed by the merchants and their employees, of the final concrete utilities purchased by the merchants for sale, and of all requisite to their assembling, storing and selling. All of the stages and processes of production would culminate in the production of the final concrete utilities sold by the merchants and all the dollars expended in their production would culminate in the dollars paid by the final buyers.

Let us trace these ramifications of buying and selling and the ratios of exchange to which they gave rise in that stage of the hypothetical development when grain, hides and fibers were produced by farmers and timber by foresters; when grain was transformed into flour by millers, hides into leather by tanners, fibers into cloth by weavers, timber into logs and boards by lumbermen; when leather was transformed into shoes by shoemakers, cloth into clothing by tailors, logs and boards into shelter and its appurtenances by carpenters and let it be assumed that flour was transformed into bread by bakers; when bread, shoes, clothing and the appurtenances of shelter were sold by merchants.

Farmers would receive dollars for grain, hides and fibers and foresters for timber. With the dollars received they

would buy bread, shoes, clothing and shelter, for the use and consumption of themselves and employees. Measures of substances sold for future transformation would have the ratio of exchange of measures of final concrete utilities produced in the past, and also of all which was requisite to the continuing production of substance.

The dollars received by the farmers and foresters would be paid by millers, tanners, weavers and lumbermen who had received them from the sale of flour, leather, cloth, logs and boards into which grain, hides, fibers and timber had been transformed in the past. More dollars would be received for the intermediate utilities than had been paid for the substances because from the sale of the intermediate utilities would have to be obtained the dollars which enabled the millers, tanners, weavers, lumbermen and their employees to buy bread, shoes, clothing and shelter. Portions of the dollars received from the sale of the intermediate utilities would have to be paid for substances to be transformed in the future and portions would have to be paid for final concrete utilities produced in the past. Therefore, intermediate utilities would have not only the ratio of exchange of substances transformed into intermediate utilities, but also the ratio of exchange of the final concrete utilities which had been used and consumed by those engaged in the transformation.

The dollars received by the millers, tanners, weavers and lumbermen would be paid by bakers, shoemakers, tailors and carpenters who had received them from the sale to merchants of bread, shoes, clothing and the appurtenances of shelter into which intermediate utilities had been transformed in the past. The final utilities into which the intermediate utilities were transformed would when sold have the ratio of exchange of the intermediate utilities bought for future transformation and of the final concrete utilities

which had been used and consumed in their transformation.

The dollars received by the bakers, shoemakers, tailors and carpenters would be paid by the merchants who had obtained them from the sale to final buyers of bread, shoes, clothing and the appurtenances of shelter produced in the past. As the final concrete utilities were sold to final buyers they would have the ratio of exchange of final utilities bought for future sale and of the final concrete utilities which had been used and consumed by the merchants and their employees during their assembling, storing and sale.

Inasmuch as the dollars paid by all final buyers for final concrete utilities had been received from the sale of substances by the producers, or of intermediate utilities by those transforming substances into intermediate utilities, or of final utilities by those transforming intermediate utilities into them, or of final utilities by merchants assembling, storing and selling them, it follows that certain measures of substances, intermediate utilities and final utilities, as they were produced and sold, had the ratios of exchange of measures of final concrete utilities produced in the past.

Inasmuch as all of the stages and processes culminated in the selling of final concrete utilities by the merchants, it follows that each person engaged in any stage and process of the production of utilities of any kind contributed directly to their production and also contributed in a sense to the production of the final concrete utilities which he used and consumed because they could not be produced and sold unless there were the continuing production of utilities in all of the stages and processes from the sale of which were received the dollars that enabled the buying of final concrete utilities.

Inasmuch as final buyers paid dollars received from the sale of utilities emerging from one or another stage and process of production for the final concrete utilities used and

consumed by them, it follows that all dollars expended in all the stages and processes of production were ultimately reimbursed by the dollars received from those engaged in the various stages and processes. Although the dollars expended in all the stages and processes were ultimately reimbursed by dollars received from final buyers, obviously all the dollars received at any given time from the sale of substances, intermediate utilities and final concrete utilities, could not be expended for final concrete utilities for use and consumption. Portions of the dollars received from the sale of intermediate utilities would have to be paid for substance for future transformation into intermediate utilities; portions of the dollars received from the sale of final utilities would have to be paid for intermediate utilities for future transformation into final utilities; portions of the dollars received by merchants from the sale of final utilities would have to be paid for final utilities to be assembled and sold in the future.

None the less, as the application of human effort was necessary in every stage and process of production, as all the stages and processes culminated in the production of the final concrete utilities from the sale of which dollars were received which passed to those applying effort in the stages and processes, it follows that all dollars expended ultimately passed to final buyers and were reimbursed by dollars ultimately received from final buyers.

An elaboration of the analysis would disclose that this statement also holds good when production was effected by the utilization of tools and implements. In order that tools and implements might be replenished, portions of the dollars received from the sale of utilities emerging from any stage and process of production in which they were utilized must have had the ratio of exchange of the new tools and implements which in time were necessary.

With the use of instruments of production applying power

generated by steam and electricity there has developed a still wider ramification in the processes of production, buying and selling and the ratios of exchange have become still more complicated. None the less as instruments of production and structures are utilized in one or another of the stages and processes which culminate in the production of final concrete utilities or final intangible utilities, it follows that the dollars received from the sale of final utilities reimburse the dollars expended for instruments and structures, and these dollars ultimately pass to those applying effort in their construction.

Dollars expended for the intangible utilities of personal service are paid ultimately for final concrete utilities for the use and consumption of those rendering the service or for concrete utilities requisite in rendering that service.

All the dollars received at any given time could not, if production, buying and selling are to continue and to increase, be expended for final concrete utilities then in existence. All dollars, however, expended in the successive stages and processes of production culminate in the dollars expended in the production of final utilities which minister to the wants of human beings, and all dollars paid for final utilities produced enable expenditure in the successive stages and processes from which final utilities emerge in the future.

The preceding analysis has been based upon the supposition that from the sale of utilities emerging from any stage and process of production are always received the dollars which enable expenditure for all requisite to the continuance of their production. If utilities of any kind are produced in volumes so large or so small that dollars so requisite are not received loss falls upon the employer. It may react upon the employees and in less or greater degree upon the final buyers of utilities, the production of which has been impaired.

XVIII

DEVELOPING SPECIALIZATION AND COORDINATION

If one who had passed from this life one hundred years ago, or even fifty years ago, were to return to the world to-day he would be bewildered by the multiplied variety of utilities and the proportions in which they enter into the use and consumption of the population. Never in the history of the world has any people known such material comfort as has come to the people of the United States with the impetus to industrial progress that began with the advance in invention and discovery during the last quarter of the nineteenth century. Never were the less indispensable utilities that serve both use and ornament so voluminously produced and so generally diffused.

This material welfare, which in the United States suffered only a temporary interruption because of the World War, has been attained by the development of that coördination and specialization which began when farmers and millers produced flour; farmers, tanners and shoemakers produced shoes; farmers, weavers and tailors produced clothing; foresters, lumbermen and carpenters produced shelter and its appurtenances. Coördination and specialization have so ramified that separate business organizations specialize in the production of minute parts of all that enters into the utilities of general use and consumption.

Characteristic of the production, buying and selling of the present is the fact that the utilities produced and sold by a business organization contribute through ramifying

channels toward meeting the wants of a vast number of persons. In but negligible proportion are utilities produced in limited volumes by a limited number of workers to meet the wants of a limited number of persons. An employer with one or two employees working in a modest shop may produce utilities of a given kind in a limited volume which are sold to a limited number of persons. In the processes of that production will be utilized measures of substances or of intermediate utilities which have been produced in large volumes by other business organizations, and tools, implements and machinery which have been wrought of substances and intermediate utilities produced in large volumes.

A seamstress working with her hands uses needles and thread. In order that needles may be provided for her use, iron ore has been extracted from the mines and transported to where it is transformed into steel. Steel has been transformed into bars which are transported to where they are drawn into the wire and the wire has been transformed into needles. In order that she may be provided with thread, bolls are taken from the cotton plants and conveyed to the ginning mill where the seeds are separated from the cotton. The cotton is then compressed into bales and transported to the places where it is transformed into the strips which are drawn into the thread. The thread is then wrapped on spools, transported to the wholesale establishments and thence to the retail establishment where it is bought by the women who sew in their homes, by the seamstresses who work for themselves and by the employers who provide both the needles and the thread used by their employees. In every stage and process of the production of needles and thread dollars have been paid and received for the utilization of land, instruments of production and human effort, for the materials consumed in the processes of production and the substances which, throughout successive stages and

processes of transformation, emerge as needles and thread. A portion of the dollars paid to dressmaker, tailor, modiste and milliner by every final buyer of the garments bought pays for a portion of the productive force applied to matter and a portion of the matter to which it has been applied in the production of needles and threads.

Although there are business organizations which specialize in the production of needles they are only one of innumerable articles into which the ore extracted from the iron mine is finally transformed. Steel enters into the construction of innumerable kinds of cutlery and even into wearing apparel. The effect of variation in demand is exemplified by the fact that a change in the fashion from high to low corsets necessitated the application to other purposes of two mills of a great steel corporation that had been utilized in making the long steel ribs for the high corsets.

Steel enters into the construction of innumerable kinds of hand tools and instruments utilized in the production of concrete utilities, in the practice of the professions and the arts and in the research of the scientist. It enters into the construction of the buildings in which people live and work and congregate, into the construction of virtually all instruments of production that are utilized in every stage and process of production from which final concrete utilities emerge and in the construction of other instruments of production. The final buyers of the final concrete utilities in the construction of which steel enters or in the production of which have been utilized instruments of production in the construction of which steel has entered, pay for all of the dollars that have been expended in the production. The fibers, the woods and the metals and the compositions of the earth are likewise transformed through successive stages and processes into intermediate utilities of innumerable kinds and final concrete utilities of innumerable kinds. The final

buyers of the final concrete utilities of all kinds pay for the utilization of land, of instruments of production, and human effort by means of which productive force is applied to the matter which emerges in the form of these final concrete utilities.

The grain from one farm is transformed into cereals that may enter into the food of thousands of persons; the grain from all the farms is transformed into food that enters into the consumption of the entire population. Portions of the grains of some kinds may be fed to the animals whose flesh enters into the food, and whose coverings enter into the shoes and clothing and other articles of use to millions of persons. Fruits and vegetables from one orchard or one truck farm may reach the tables of thousands of persons. The fruits and vegetables from all their sources of production enter into the consumption of the entire population, and so also with milk, poultry, butter and eggs. So also with the bivalves and fish from the waters.

Measures of productive force applied to matter result in the production of the foods by means of which is generated productive force in the form of human effort which directs and controls the application of all productive force. As the population increases there is specialization in the production of food to the extent that business organizations receive from the sale of the foodstuffs or the food which emerges from the processes of production for which they are responsible, that command over utilities which enables them to continue in the specialized production. There was a time when on the same farm were produced wheat, corn, fruits and vegetables; cows for the slaughter and cows utilized for the production of milk; poultry, eggs and butter. From the sale of all of the utilities produced by such a farmer he received the dollars which gave command over the final utilities requisite for the use and consumption of himself

and his family and over that which enabled the continuance of production. Crops are still planted in rotation on the farms. Some farmers produce both grains and animals, but in greater proportion there has come to be specialization in their production. Farmers specialize in the production of poultry and eggs, and specialized business organizations in the production of cream and butter. There are truck farms which produce vegetables in vast volumes, orchards which produce deciduous fruits, citrous fruits, and vineyards which produce grapes in vast volumes. From lands especially adapted to their production come vast volumes of rice. Business organizations specialize in the storage of meats, poultry and butter, in the preserving of fruits and vegetables. A recent development of specialization is the devotion of plantations to the growing of Christmas trees of which between four and five millions are annually required in the United States for the Yuletide.

As the utilization of instruments of production applying power generated by steam and electricity has resulted in the production of indispensable final concrete utilities with the application of a decreasing proportion of the available productive force, more productive force has been available for application in the production of other utilities. Substances are produced not only in the volumes requisite for transformation into indispensable final concrete utilities but also into the less and less indispensable final concrete utilities and into instruments of production by means of which utilities previously produced are produced in increasing volumes, and utilities of additional kinds are ever being produced in volumes which are ever increasing and diffused in greater degree throughout the population.

Before the invention of such instruments, employees who applied their efforts by means of hand tools produced utilities in greater volume and variety than would have been

possible without the use of the hand tools but the provision of the hand tools was due to the investment of profit by the employers which enabled employees to apply effort in their construction. So also as the utilization of instruments of production applying the power generated by steam has extended throughout all the processes of production, the employees who apply effort in guiding, watching and attending the operation of the instruments contribute to the production of utilities in increasing volumes and varieties but those responsible for the invention, construction and utilization of the instruments have a larger part in this increasing production. The efforts of the employees are essential to the utilization but it is the profit invested in the construction of the instruments which has made their efforts available in the increasing volume and variety of production. As those who have thus invested profit have made possible the production of utilities which in increasing degree meet the wants of greater numbers of persons, it would seem only fair that to them and to the employees whose efforts contribute in greater and greater degree to the volume of production should accrue the command over rare and expensive utilities which cannot possibly be produced in volumes sufficient for all.

Through increasing specialization and coördination in the utilization of instruments of production, substances are produced in volumes available not only for transformation into final concrete utilities, into tools, instruments and appliances used in the rendering of personal service, but into new instruments as they are invented. It was by the investment of profit that the sewing machine was brought into existence, the typewriter, the telephone, the electric light, the flying machine and most recently the apparatus of the wireless and radio. Utilities due to new inventions are at first of limited production. Through gradual improvement

and the specialization and coördination effected by those responsible for their production, they are produced in greater volumes in relation to the productive force applied and become available for the use of increasing numbers of the population.

There are instruments of production by means of which the mental effort of those responsible for the processes of production becomes more effective. Of such, for example, are the telephone and the typewriting machine. There was a time when the manager of a business organization having mines or mills, wrote letters to the superintendents with his own hand and relied upon a horse driven vehicle for visits of inspection. He now has more time to think and direct because information is received and orders transmitted by telephone, letters are dictated to typists and his conveyance is by automobile. This means that the manager can think about more things, settle more questions and give more orders in a given time and that therefore he is under greater mental pressure, but all this conduces to the production of utilities in increasing volume in relation to the productive force applied.

Invention and discovery lead to specialization in production which at first seems insignificant but vastly expands. An example both illustrative and historical may be cited. One hundred years ago the white shirts worn by men were garments with the collars attached. It occurred to a man living in a town on the eastern bank of the Hudson River that the usefulness of a shirt could be prolonged if the collars were made separately and that the cleanliness of the neckpiece could be maintained by more frequent changes of the collar. His wife made collars for his use that at first were attached to the shirt by strings of tape; then they were pinned to the back of the neck and buttoned in front. They were so successful that she made collars which the

neighbors were glad to buy. The inventor of the separate collar employed women, often gentlewomen of other families, who were glad to increase their incomes by thus applying a portion of their effort. It occurred to him to take a basketful of the collars to Boston where they found ready sale. Then their sale extended to New York and to other communities. There came the device for buttoning at the back of the neck as well as in the front. Collars were made more durable by being wrought of manifold plies of linen or cotton and stiffened with starch. Buttonholes were devised that did not readily tear. There evolved the standing collar, the collar with wings and the turn-down collar. It came about that in this town on the eastern bank of the Hudson different business organizations specialized in the production of collars and of the cuffs which for many years were separate articles of men's attire. Pattern blocks and knives were invented whereby piles of cotton or linen, many sheets thick, could be cut with one application of the knife into collars of an especial design and an especial size. Then machinery was invented for use in various processes of cutting and folding. The making of collars and cuffs and then of shirts became characteristic of the town on the eastern bank of the Hudson. Tradition and association led young men and young women into the employment in which they obtained specialized skill and training. Shirts are made in nearly every town and city in the United States but this town which long ago became a city of importance continues to supply nearly all the collars worn by men throughout the United States and a large proportion of the collars worn by men in other parts of the world. Business organizations engaged in their production utilize land, instruments of production and matter in the form of linen and cotton cloth to which productive force is applied by means of which it is transformed into the forms of matter

known as collars. They afford employment to hundreds of employees.

The developing specialization of which this is an example has been extended through invention and design to the production of articles of apparel especially adapted to the needs of the babe in the crib, of growing children, as well as of women and men, to the production of articles of innumerable kinds of use by the individual and the family both within and out of the home.

Another example likewise both illustrative and historical may be cited. A soldier emerging with slender resources from the Civil War was obliged to turn his attention to making a living. It occurred to him that a good way to make a living would be to produce something for which there was great demand, and to make the thing produced better adapted than any other for meeting the demand. The first step was to ascertain the kind of thing to produce. In the western state whence he had come the abundant forests were then being cut by woodsmen with hand tools. It occurred to the veteran that there would be great demand for the ax best adapted to the cutting of trees. He thought out the shape and construction of such an ax and asked the criticisms and suggestions of many woodsmen. The result was the manufacture of an ax that met with ready and increasing sale. The veteran entered upon the manufacture of other tools for cutting likewise carefully adapted to their purpose. These were accorded the same trademark as the ax. Upon this foundation has grown one of the largest business organizations of the Middle West.

In the early centuries of artistic development works of art were conceived and given separate and individual form by the artist. Of such are the masterpieces of ancient times and of modern times. In ancient times the possession of works of art was restricted to the few, their enjoyment to

the possessors and those admitted to their houses. Only the few can now possess masterpieces but processes have been discovered and invented by means of which reproductions are made available for virtually all persons who care to have them.

As the indispensable final concrete utilities are produced by smaller and smaller proportions of productive force, the number increases of those who may devote their efforts to the conception and design which leads to the embodiment of the beautiful not only in the works of art wrought by the artist for the few, but in the concrete utilities that are widely diffused. Packages in which things on the shelves of the retail dealer await sale to the final buyer and the labels on the packages are often of artistic design. Artists design not only the garments fashioned to meet the taste and requirements of individuals for whom they are especially made but also garments produced in large numbers, ready for the wear of the many. Tables, chairs and beds, wallpapers and carpets are more serviceable and of more attractive design. The service of architects who give harmony to design and adaptation to dwellings is more and more within the reach of the many. Magazines publish the designs of architects and discussion as to the adaptability to its purpose of all that enters into the home. As business organizations come more and more to give the artistic touch to forms of matter to which productive force is applied they guide and develop the taste of vast numbers. Nearly all of the structures utilized in production once were uncouth. Many of them are so to-day. But design of the architect and plan of the engineer are bringing symmetry and adaptability to purpose even in the construction of shop, mill and factory. Many of the great office buildings and railway stations are architectural monuments.

This progress, especially characteristic of the last half

century, has been due to the specialization and coördination by means of instruments of production in the application of productive force to forms of matter which emerge in greater and greater volumes in relation to the productive force applied and which tend to a greater beauty and greater serviceability as the developing conception of the artist, the architect and the engineer enter into the application.

The evolution of production, buying and selling has made this progress possible. In the current there is ebb as well as flow, but with all of the ebb there is an expanding flow. An individual coming into life, a business organization coming into existence, enters a current of specialized production in which there is universal utilization of instruments of production, generating and applying the force of steam and electricity to substances of increasing variety that are wrought into innumerable forms. A human being is a molecule in the swirl of the current of which the business organization is a nucleus.

As always, the human being whose existence is maintained must have the indispensable final concrete utilities necessary to his existence. The maintenance and development of the family upon which the progress of civilization depends requires the indispensable final concrete utilities. To an advancing civilization is necessary not only the production of the indispensable concrete utilities but also of less and less indispensable utilities. The ministration of those who render personal service in the household, in the practice of the professions and the arts, in the care and training of the coming generation, and in the extension and diffusion of knowledge is all necessary to such progress. The entire population cannot use and consume more than is produced and it is impossible that the entire population should share in equal degree in the use and consumption of all that is produced.

XIX

THE RATIOS OF EXCHANGE

A VOLUME of utilities of any kind or of a kind of different grades, or of different kinds of different grades for the production of which a business organization is responsible, has the ratio of exchange of a certain number of dollars. Of that total number of dollars received in payment for the utilities which it sells, a business organization does not have a wide range of choice as to the kinds of utilities it must buy in order that its production may continue.

Farmers specializing in the production of foodstuffs of certain kinds must have the seeds, fertilizers, and instruments of production requisite to the production of foodstuffs of those kinds. Business organizations specializing in the transformation of substances into intermediate utilities of particular kinds must buy the substances of the kinds which they transform and have the instruments of production and materials consumed in the processes requisite to the continuing of the production. They may buy from different producers but they must buy substances, instruments and materials of the kinds requisite for utilization in the processes for which they are responsible. If they combine substances of different kinds in their transformation into the intermediate utilities which they produce, they may buy the substances of the respective kinds from one or another of competing producers. It is likewise with the business organizations which transform intermediate utilities into further intermediate utilities and intermediate utilities into final utilities. They are obliged to buy the inter-

mediate utilities of the kinds which they transform whether they buy intermediate utilities of one kind or intermediate utilities of various kinds. They must have instruments of production and the materials consumed in the processes which are adapted for their utilization. The wholesale dealer, if he specializes in the wholesale of final utilities of particular kinds, is likewise limited as to the producers from whom he buys. If he specializes in the wholesale of final utilities of related kinds, as does a wholesale dry goods dealer, a wholesale druggist or a wholesale grocer, he may buy the utilities of respective kinds from organizations which respectively specialize in their production. If the retail dealer specializes in the sale of final utilities of a particular kind, he may buy them from the wholesale dealers who compete in the sale of utilities of that kind. If he specializes in the sale of final utilities of related kinds, he may buy them from the wholesale dealers who compete in the sale of utilities of those kinds. The greater the variety of the kinds and grades of utilities which he sells, the greater is the number of competing wholesale dealers from whom he may buy. A department store which sells final utilities in the form of food, clothing, articles of personal use and household use, may buy them from a great number of competing wholesale dealers.

As final utilities in increasing variety emerge from the processes of production, units of each have the ratio of exchange of respective numbers of dollars. The final buyers of final utilities, even those with a limited number of dollars have a wide range of choice as to the kinds and grades of final utilities which they will buy. They are obliged to buy food, clothing and the appurtenances of shelter but there are innumerable kinds and grades of these essential utilities.

Although the choice of final buyers is a large factor in determining the volumes in which final utilities of respective

kinds and grades will be produced and sold the volumes in which all final concrete utilities are produced are limited by the volumes of substances which are ultimately transformed into them.

Inasmuch as the dollar is the unit of exchange, and as dollars are expended for all that is utilized in the production of utilities, and dollars are paid for utilities produced, the dollar is the expression of equivalence of exchange. As a given number of dollars are expended for all of the measures of productive force applied and the measures of matter to which they are applied in the production of utilities of all kinds, one dollar expresses a proportion, infinitesimal though it may seem, of all of the measures of productive force and the measures of matter to which they have been applied in the production of a given volume of utilities whether of substance, intermediate utilities or final utilities. A total volume of concrete utilities of whatever kind produced is a total volume of matter in the form in which it has emerged from production. As a total number of dollars has been expended for the total measures of productive force applied and for the forms of matter to which they were applied, a proportion of that volume has the ratio of exchange of one dollar even though no measure of that total volume may be sold for exactly one dollar. As all production, buying and selling is the exchange of utilities for utilities, measures of utilities in the forms of matter produced by the application of productive force are exchanged for measures of other utilities in the forms of matter produced by the application of productive force. Measures of utilities for which a given number of dollars are received and paid are equivalent from the standpoint of exchange to the measures of utilities of other kinds for which that same number of dollars would be received and paid. This is true even though greater or smaller proportions of productive force applied to

greater or smaller proportions of matter, it may be to forms of matter of different kinds and in varied combination, result in the production of the respective measures of the different utilities.

Substances of all kinds are produced in vast volumes. Through specialization in successive stages and processes, they are transformed into final concrete utilities which meet the wants of the entire population. Relatively small measures of vast volumes of substance enter into respective units of the final concrete utilities which pass into the use and consumption of individuals and the family.

A large measure of substance has the ratio of exchange of one dollar because the application of a relatively small proportion of productive force results in the production of a relatively large proportion of substance. A smaller measure of intermediate utilities has the ratio of exchange of one dollar because in the production of a unit of an intermediate utility has been applied the proportion of the productive force utilized in producing the proportion of substance and the proportion of productive force utilized in the transformation, and often because it has not been possible to utilize all of the substance in the processes of transformation. A small measure of final utilities may have the ratio of exchange of one dollar because in the production of a unit of a final utility has been applied the proportion of productive force utilized in producing the proportion of substance, the proportion of productive force utilized in transforming the substance into the intermediate utility and the proportion of productive force utilized in transforming the intermediate utility into the final utility. If proportions of various substances and of various intermediate utilities have been combined, the proportions of productive force respectively applied to the respective forms of matter have converged in the production of the unit of the final utility

which has the ratio of exchange of one dollar. Fertilizers, fuel, lubricants and other materials consumed in the processes of production are produced in large volumes in relation to the productive force applied, sold in smaller volumes to those who use and consume them, and enter in smaller and smaller measures into the production of units of final concrete utilities as substances are divided and subdivided in the processes of transformation.

Thus it is that a vast aggregate of productive force has been applied to a vast aggregate of forms of matter in the production of the vast aggregate of final concrete utilities in existence at a given time. While the proportions in which productive force is applied accumulate with the successive stages and processes, the proportion of that accumulation embodied in a unit of a final concrete utility, may be represented by a relatively small number of dollars. It may be represented even by a fraction of a dollar if the unit is a form of matter in which has been embodied a relatively small proportion of productive force, or by a multiple of a dollar if it is a form of matter in which has been embodied a greater proportion. When there has been the accumulation of productive force applied throughout the production of substances and intermediate utilities of many kinds which have been combined and recombined in the production of final utilities which are produced and sold in large units, such a unit has the ratio of exchange of a considerable number of dollars. All that has entered into the production of such units of final concrete utilities is represented by the ratio of exchange of an increasing number of dollars. A structure utilized as a residence is such a utility, whether it be a modest dwelling containing the furniture and utensils requisite to the maintenance of the household, or a city mansion of stone and marble equipped with fine rugs and furnishings.

Instruments of production in the form of tools and implements may not be composed of a variety of substance. In the construction of even the more complicated engines and machinery the woods and metals are often of no great variety but they are wrought into a great diversity of shapes constituting the different parts of the instrument.

A volume of utilities of any kind is the result of measures of productive force applied to measures of matter. The respective measures or units of a volume of concrete utilities of any kind emerging from any stage or process of production have the ratio of exchange of a certain number of dollars. Therefore it might seem that the dollars received from the sale of utilities of whatever kind, by whomsoever received, could be expended for utilities of any other kind. It might seem that measures of utilities of any kind having the ratio of exchange of a certain number of dollars would have the ratio of exchange of measures of utilities of any other kind having the ratio of exchange of that number of dollars. It has been disclosed by the preceding discussion that this is not the case. Although all of the dollars received at any given time for a total volume of substance, intermediate utilities, or final utilities might conceivably be expended for final concrete utilities and thus the total volumes of substance, intermediate utilities and final utilities for which a certain total of dollars had been received would have the ratio of exchange of the final concrete utilities then in existence the production of the utilities from which were obtained the dollars so expended would cease.

XX

INSTRUMENTS OF PRODUCTION AND RATIOS OF EXCHANGE

AFTER the utilization of an instrument of production generating and applying the power of steam or electricity has been inaugurated in any stage and process of production, payment must be made for the repair, renewal and replacement of this instrument from the dollars received from the sale of the utilities emerging from the stage or process in which it is utilized. Certain proportions of the dollars received from the sale of the utilities produced throughout the period of its utilization have the ratio of exchange of all which has entered into the construction of that instrument and into its repair and renewal. They must have at least this ratio of exchange or payment could not be made for the instrument, and it could not be kept in condition for utilization.

It is not alone the forms of matter entering into the construction of such an instrument which determine its serviceability. In greater degree it is the efficiency with which is applied the productive force that is generated.

As by the utilization of instruments of production utilities of every kind are produced in larger volumes than otherwise would be possible, larger volumes of utilities of any kind emerging from the processes of production have the ratio of exchange of larger volumes of utilities of other kinds. The utilization of the instruments and of the materials consumed in the processes results in the production of

utilities which contribute toward meeting the wants of a vastly greater number of persons. The greater the efficiency with which the instruments are utilized, the greater are the measures of utilities produced in relation to the forms of matter constituting the instrument, the forms of matter consumed in the processes of production and the forms of matter to which the force is applied. So long as the utilities of the various kinds and grades are in due relation greater volumes of credits accrue to those responsible for the utilization of the instruments.

As business organizations utilizing instruments of production produce utilities in the larger volumes which have the ratios of exchange of greater measures of other utilities than the smaller volumes of business organizations engaged in production of the same kind, these other organizations are compelled to utilize such instruments or to discontinue production. It comes about that business organizations competing in the production of utilities of every kind utilize instruments of production. Larger volumes of utilities are produced which have the ratio of exchange of larger volumes of other utilities but competition between business organizations competing in production of the same kind tends to limit the proportions in which the utilities respectively produced by them have command over other utilities. There may be such over-production of utilities of certain kinds that their ratios of exchange fall so low that they do not have command over the utilities requisite for continuing production. But if the production and utilization of instruments of production is to continue, the business organizations most efficiently utilizing the most efficient instruments must continue to receive in exchange for the utilities they produce that command over utilities requisite to their renewal and replacement in addition to the ratios of exchange of the forms of matter to which productive force is

applied by means of the instruments, the materials consumed in the processes of production and of the final concrete utilities used and consumed by those applying effort in their utilization. Moreover, the utilities produced must have the ratio of exchange of greater volumes of utilities than these. Otherwise there could not be the increased production of the instruments. If there were not the continued and increasing production and utilization of instruments of production there would be a relapse to production by means of hand and hand tools.

The utilization of instruments of production by various business organizations results in the production of utilities in different volumes which have different ratios of exchange. The command over utilities accruing to those having property in the instruments and responsible for their utilization varies in different kinds of production and with different business organizations in respective kinds of production. The degree in which the utilization of an instrument of production results in the production of utilities which have the ratio of exchange of greater volumes of other utilities than otherwise could be obtained tends to determine the command over utilities which will accrue to those having property in it or responsible for its utilization.

Into structures utilized in production at the time of their erection entered various forms of matter resulting from the application of productive force to forms of matter which respectively had the ratio of exchange of respective numbers of dollars, all of the forms of matter constituting the structure having the ratio of exchange of a total number of dollars. As in the case of instruments of production so also in the case of structures certain proportions of the dollars received from the sale of utilities produced throughout the period of their utilization must have the ratio of exchange of all that has entered into their construction, their repair

and renewal. In nearly all kinds of production structures are essential to the utilization of instruments of production and to the storing of utilities produced until they are transformed and stored for sale to final buyers.

XXI

THE TIERS OF THE PYRAMID

ALTHOUGH there is difference in the wants of different individuals and difference in the relative importance which they ascribe to utilities of different kinds in meeting these wants, there is a broad similarity in general between the wants of all persons. If this were not so final concrete utilities of similar kinds and grades would not be sold in large volumes to great numbers of persons and similar utilities in the forms of personal service would not be rendered by great numbers of persons to vast numbers of others.

The needs of all individuals and all families may broadly be grouped in a scale which ascends from the vast volume of utilities necessary to the maintenance of existence and to the care and training of the coming generation through those which minister to comfort more than to necessity, to recreation, to the enjoyment of social intercourse, those which serve as stimulus to the intellect and the emotions and as ministration to the spiritual life. These needs apply in greater or less degree throughout the entire population. They are in an ascending scale that varies with different individuals and families. With some individuals and families certain grades in the scale are entirely lacking.

As these wants are in ascending scale so also must the production of the utilities which meet these wants be in an ascending scale like the tiers of a pyramid. The great base of the pyramid is the vast volume of food which is consumed as it is used. The next tier is the vast volume of clothing which is consumed as it is worn. The next is the

vast volume of shelter and its appurtenances which are slowly consumed as they are used. These three tiers are of utilities which minister to the wants of both adults and children. For the coming generations from the time of birth until emergence into the activity of the world there must be special ministration to which especially adapted utilities are requisite. These may be considered as constituting the fourth tier. In ministering to recreation are the paraphernalia of games of the indoors and out of doors, and in ministration to the enjoyment of social intercourse are the preparations for the entertaining of guests which in many households are apart from the family routine. Perhaps on the part of the entire population the desire for recreation, entertainment and social intercourse is greater than the desire for broadening the range of knowledge. The desire for information, for reading, travel, attendance at lectures and discussion, is deep rooted in a great part of the population but has little existence in a very considerable part. Likewise the desire for intellectual and emotional stimulus obtained by attendance at theater, opera or concert is common to a vast proportion of the population but its manifestations differ widely. The desire for ministration to the spiritual life, non-existent in many, has abiding influence upon the lives of others.

As utilities thus broadly grouped form the ascending tiers of a pyramid, so also utilities of each group may be placed in ascending tiers. Food is of many kinds ranging from the staple meats, grains and vegetables to the viands that are rare and require elaborate preparation. There are garments ranging from the durable and serviceable to those of fine and rare raiment, luxuriously wrought. Furnishings range from the simplest kinds that will serve their purposes to those of rare woods and rare fibers, especially fashioned in accordance with especial design. The pictures on the

wall range from framed magazine prints to etchings and engravings and to oils and water colors that have come directly from the hand of the artist. The facility for social entertainment depends largely upon the equipment of the home but places of assembly ranging from the social center to the ball room of a great hotel are more and more widely availed of. Nearly anybody can buy the newspapers and magazines of wide circulation. There are books of simple printing and binding for sale in large editions and books of a limited number of copies printed on exquisite paper with exquisite illustrations. There are implements for recreation that are simple and implements that are elaborate.

The denudation of the forests is making it more difficult to obtain the woods which enter into the construction of dwellings, but the products of iron and steel and compositions of the earth are more abundantly used. The desire of a family for a large house with many rooms seldom occupied is passing with the perception that the comforts of living may be obtained and the family's needs met in a much smaller space. Houses in the country are equipped with conveniences unknown until within recent decades, and in the cities many live in rented quarters with a minimum of the care and the annoyance that once beset the housekeeper. The provision of adequate housing was sadly interrupted by the World War, but those with accumulated credits have rapidly increased the production of dwellings since its close.

If it be accepted that the degree in which each person engaged in production, buying and selling obtains benefit from the results of the efforts of others should be determined by the degree in which results of his efforts contribute to the benefit of others, the degrees in which different persons may buy of the staple utilities, of the utilities of higher grades, the degrees in which they should have command over the means for recreation, travel and the entertainment

of others ought to be determined by the degree of benefit which the results of their efforts confer upon the population.

What every person buys has the ratio of exchange of that which he sells. The more he can obtain for what he sells, the greater is the ratio of exchange of that which he sells. Therefore, those who contribute in the greatest degree toward enhancing the volumes of utilities, who contribute in the greatest degree toward enabling buyers to obtain the greatest measure of that which they want in return for what they sell are of vastly greater benefit to the entire population than those who engage in the ordinary routine of buying and selling.

XXII

THE EMPLOYEE AND THE BUSINESS ORGANIZATION

REQUISITE to a man's entry upon the application of effort as an employee is the body and brain capable of the exertion demanded by the work that is undertaken. He must have been provided at least with food, clothing and shelter whether he comes from a well nurtured family or from an orphan asylum. Measures of the results of productive force applied to matter have been used and consumed in rearing him and measures of personal service have contributed to his training. When he enters upon the application of effort as an employee he requires no more than the body and brain from which his effort emanates and the indispensable final concrete utilities which maintain his existence. If the supply of such utilities from his home or other source then cease he must obtain such measures of final concrete utilities and personal service as accrue to him from the application of his efforts.

A large proportion of those who enter upon the application of effort as employees continue as employees throughout their active career. Some find temporary employment at one place or another largely because there are phases of production necessarily dependent upon the seasons. There is, for example, a greater demand for men on the farms, in the mines and in the building trades at one time of the year than at another. Such shifting employees exert effort which is mainly physical: in considerable proportion they do not desire to work continuously if during periods of employ-

ment they can obtain sufficient to maintain existence during periods of idleness. The great body of wage earners live in fixed habitations for considerable periods, working steadily, usually at specialized tasks when they have steady employment. Some employees remain continuously throughout their working lives in the service of one business organization. Some employees apply effort in domestic service for many years in the service of one family.

The comparison to the tiers of a pyramid may be made in grouping those who apply effort as employees. At the bottom are those who put forth crude physical effort. The next and a shorter tier is composed of those who put forth skilled effort. Above them is the still shorter tier of those who put forth highly skilled effort. Above them is the still shorter tier of those who guide and direct the application of the effort of others. At the top is the short tier of those who design and conceive, direct and manage. There have been and continue to be innumerable cases in which employees, by the manifestation of capacity and industry, rise from one tier to another, even from the lowest to the highest, the experience gained in one tier adding to their equipment for service in the next. It has become the practice of many men of large affairs to train their sons in a thorough and immediate knowledge of the various phases of business activity by having them begin at the bottom and work up. There are employees whose thrift leads to saving, whose perception of opportunity and enterprise in grasping it enables them to become employers.

The fundamental distinction between the employee and the employer is that the one applies effort while the other provides that by means of which and to which the effort is applied, is ultimately responsible for its results and thus has a greater responsibility. In earlier years it was almost universally held that a man would not have the personal

interest in the success of a business organization sufficient to justify his being charged with the responsibility for the conduct of any important phase of its operations unless he had a proprietary interest in the organization. This idea has undergone a radical change, especially in relation to the conduct of the great business organizations of modern development. The number of men of wide information, of mental grasp and capacity is always less than the demand. Those charged with the administration and management of the large organizations are ever on the lookout for such men and eager to promote employees who have demonstrated their ability. As employees ascend in the tiers of the pyramid of a business organization they receive as reward increasing command over utilities. In increasing degree employees, even of the lowest tiers are enabled to purchase a proprietary interest in the organization, and thus to share in its profit or participate in its loss.

Fundamentally the employee is responsible for the application of effort that accords him at the least command over the utilities indispensable to the existence of himself and those dependent upon him. The employer is responsible for the provision of that by which and to which the employee's effort is applied, for the sale of the results of the application, and for obtaining the credits wherewith the business may be continued, including the payment of the wages of the employee. Therefore it is quite true that although the employer employs the employee in the expectation that the employee's efforts will contribute to his profit, the employee also employs the employer to make a better living for him than he could otherwise obtain. Moreover, as the employers are responsible for forecasting the wants of the population, the production of the utilities which meet those wants and in far the greater proportion the population is constituted of employees who buy utilities produced, the processes

of production for which employers are responsible are directed in greatest measure to supplying the wants of employees.

Although employees advancing in the service of a business organization may acquire a greater command over utilities than they could obtain if they engaged in business for themselves, it remains the fact that a man cannot enter upon business for himself even as a push cart peddler unless he have property in the push cart or pays for the right to its utilization and unless credits accumulated by himself or obtained from another have been invested in the fruits and vegetables or the stockings, shirts and sweaters or other articles which he sells. If he is to continue in business the utilities which he sells must have the ratio of exchange of the dollars which enable him to buy the indispensable final concrete utilities necessary to the maintenance of his existence, to replenish his stock as it is sold, to repair, renew and finally to replace the push cart. He utilizes the land upon which his push cart stands, a structure in the form of a push cart, the human effort applied by himself in assembling, storing and selling the stock and the results of productive force applied to matter which have emerged in the form of utilities which he sells. Many a push cart peddler supports a family including children who go to school. The superintendent of an East Side settlement house in New York is authority for the statement that it frequently does not require longer than five years for a push cart peddler to become the owner of real estate.

Any business organization, even the simplest, composed of an employer and one employee in any stage and process of production utilizes land, instruments of production and that which it buys for transformation or for sale without transformation. There are business organizations composed of an employer and one or a few employees which occupy

a loft or a room of a building in which power is diffused for the utilization of many small business organizations. Each of these organizations shares in the utilization of the land upon which the structure stands, of the structure and of the power generated and diffused throughout the building. It applies productive force to the forms of matter which it transforms and from the sale of utilities produced must obtain the credits which enable it to pay for the utilization of land, structures, instruments of production, to replace the forms of matter which it transforms and to provide at least the indispensable final concrete utilities for the use and consumption of the employer and employee. Such an organization produces and sells utilities which meet the wants or are utilized toward meeting the wants of a greater or less number of persons. It is part of the current of production, buying and selling. If there is increasing demand for the utilities produced and they are produced in increasing volumes in relation to the productive force applied to the forms of matter to which it is applied, portions of the dollars received accrue to the employer as profit. They may be expended for all that is requisite to increasing his business. They may be expended for final concrete utilities in greater volume and variety or for the results of personal service of increasing variety.

In the course of time a business may so expand that from the sale of utilities produced the employer may be able to erect or purchase a structure, and the engine or dynamo and machinery by means of which power is generated and applied. He will buy more of the forms of matter transformed into utilities which he sells, pay wages to an increasing number of employees and from the larger volume of utilities produced may obtain an increasing measure of profit. The utilities for the production of which he has been responsible will contribute toward meeting the wants

or may be utilized in meeting the wants of a greater number of persons. They will have ratios of exchange of greater measures of the results of productive force applied to matter which have emerged in the form of other utilities.

Many great business organizations, as exemplified in a preceding chapter, have developed from such modest beginnings. Their progress has been rapid when they have utilized new inventions, especially if they have been protected by patents, improved processes, or have devised new ways in which forms of matter could be utilized, or have brought forms of matter anew into the processes of utilization and have been efficient in the processes of production and in selling the utilities produced. In any event, it has been the investment of accumulated credits in land, instruments of production, in materials consumed in the processes of production and in the forms of matter to which productive force is applied, which has resulted in an increase in the volume and varieties of utilities which the population uses and consumes. As the current of production flows on, specialized business organizations evolve from the current of production as specialized organisms have evolved from the current of animate existence.

XXIII

EQUILIBRIUM IN PRODUCTION

No matter how efficiently utilities are produced, if they do not have the ratio of exchange of all that has been utilized in their production, there has been over-production or under-production. This means that although in order to meet the wants of the greatest number of persons utilities of any kind must be produced in the greatest volumes in relation to the productive force applied and the forms of matter to which it is applied, there must be a certain approximation to a corresponding increase in all that is utilized in the production of the utilities of the various kinds which are continually in demand and in the volumes in which they are produced. The greater the degree in which this equilibrium is attained, and the less the application of productive force in the production of these increasing volumes, the greater is the continual liberation of productive force for application in the production of new utilities which diffuse throughout the population in greater degree as they also are produced in greater volumes in relation to the productive force and all by means of which and to which it is applied in their production.

The ultimate purpose of all concrete production is the production of the final concrete utilities which meet the wants of the entire population. The welfare of the entire population is best served by the production of the greatest volumes and varieties of the final concrete utilities which meet these wants. Therefore the dollars received from the sale of utilities produced should pass to those who apply

effort in their production and to those who have property in that utilized in their production, in the proportions that will conduce to the production of the utilities of the different kinds in the volumes and varieties from the sale of which may be received the dollars that enable their increasing production in accordance with the interrelations between supply and demand.

The dollars received from the sale of utilities produced by a business organization must enable it to pay for all that is utilized in its production and, if it is to continue in increasing production, to increase the provision of that which it utilizes. If it pays more of the dollars received for any factor utilized than the dollars at which that factor could be obtained under the conditions of fair competition, it will have fewer dollars for other purposes. If it is enabled to increase its utilization of land, of instruments of production, of the materials consumed in the processes of production and of the forms of matter to which productive force is applied, it can give employment to an increased number of employees. If it pays more dollars as wages to employees whose efforts are of respective degrees of efficiency and grades of quality than the wages at which employees whose efforts are of equal serviceability could be secured under fair competition, its costs of production will be increased. Employees whose efforts could be secured may be obliged to work for lower wages or to be deprived of employment.

If, of the dollars received by a business organization from the sale of utilities produced, sufficient are not reserved for payment for the repair, renewal and replacement of instruments, and the production of new instruments, there would be no demand for the efforts of employees in their repair, renewal, replacement and construction. There would not be the demand for the effort of so many employees in the production of materials consumed in the processes of

production nor in the production of the increasing volumes of matter to which productive force is applied.

The results of the efforts of all those in the service of a business organization are embodied in the utilities which emerge from the stage and process of production for which the organization is responsible. The results of the efforts of the employees receiving the lowest wages may contribute toward meeting the wants of innumerable persons both rich and poor. The results of the manager receiving the highest salary may contribute toward meeting the wants of innumerable persons both poor and rich.

As the current of production, buying and selling flows on, it expands by the effort of those who design, invent and discover, and by the effort of those who make practical application of the results of design, invention and discovery, who guide and direct the application of productive force to matter. Although in the production of utilities in greater volumes in relation to the force applied such inventions and discoveries effect a decrease in the number of employees whose efforts are requisite in the production of a given volume of utilities of any given kind, they increase the demand for the efforts of employees. In the production of increasing volumes of an increasing variety of utilities, the efforts of an increasing number of employees are required.

So long as the increasing production is in equilibrium, so long as from the debits invested in additional areas of land, in additional instruments of production, in the production of an increasing volume of an increasing variety of utilities from which credits are received that enable the payment of the debits incurred the result is of benefit to the increasing number of employees for whose efforts there is demand and to the increasing population whose wants are the more abundantly supplied. It is for the benefit of the population

that those responsible for the production receive the surplus of credits over debits which enables the increase of production to meet increasing demand. This means the extension of specialization and coördination in accordance with the interrelation between supply and demand.

In a rapidly increasing population and especially in a population continually and irregularly increased by the influx of immigrants as has been that of the United States, it is difficult to maintain even an approximation to this equilibrium. Perfect equilibrium would be conceivable in the case of a stationary population whose members applied their efforts in the same proportions in the production of the same utilities in the same volumes which were used and consumed in the same proportions by the respective members of the population. Or perfect equilibrium would be conceivable in the case of a population which increased in the same proportions during similar periods, if the increasing population in the same proportions applied effort in the production of utilities of the same kinds increasing in the same proportion and they continued to be used and consumed in the same proportions. If in the stationary population there were an increase in the production of utilities of certain kinds out of relation to the increase in the production of utilities of other kinds the equilibrium would be disturbed. So also in the increasing population.

As the increasing population extended over wider areas utilizing sources of substances of many kinds in the production of substances of many kinds and of many grades of each kind, transforming them at various places into intermediate utilities of many kinds and many grades of each kind, transforming the intermediate utilities at various places into final utilities of many kinds and many grades of each kind, the equilibrium would be more difficult to maintain especially if the increase in the population was irregular at dif-

ferent periods and there was an increasing disparity in the intelligence and efficiency of its members.

As an irregularly increasing and ever more diversified population advances in the utilization of instruments of production, the adjustment of the instruments of production in number and capacity to the production of the utilities of the various kinds and grades, the provision in requisite proportions of the materials consumed in the processes of production and of the substances and utilities into which they are transformed, the maintenance of equilibrium in the various stages and processes of the production of all utilities becomes more difficult.

The preservation of equilibrium does not mean and cannot mean the preservation of equality in the proportions in which final concrete utilities of all kinds pass to each individual and each family for their use and consumption. The foremost phase of the problem is that wholesome and serviceable indispensable final concrete utilities be produced in the volumes sufficient for the entire population. Even if the efforts of all persons engaged in production were so adjusted and coördinated that the processes would continue in the greatest attainable regularity, there would still be fluctuations in prices and in profit. If in this adjustment and coördination all persons had the opportunity to do the best that they could and availed themselves of that opportunity, there would be a nearer approach to equilibrium.

XXIV

THE INTERWEAVING OF PRODUCTION, BUYING, AND SELLING

ALTHOUGH the wants of mankind may be grouped in tiers as of a pyramid and the volumes of utilities produced may be grouped in tiers in accordance with the wants they meet, and there may be a certain grouping in tiers of the factors utilized in production, there is an interweaving of all that enters into production, buying and selling.

In the continuance of production, buying and selling the transmutation of credits into debits and debits into credits which find expression in dollars, interlace, intertwine, interweave as the ripples of a pool, become wider as the pool becomes a lake and spread with unending ramifications in the sea. When production, buying and selling first developed the ripples interlaced among the number of families emerging from self-sufficiency. As there were exchanges between members of a larger group occupying a more extended area the ripples interlaced over a wider area. As production, buying and selling came to ramify throughout the civilized world, there were ripples after ripples and ripples growing into wider ripples until they emerged in waves. As ripples and waves are formed of drops of water so also the ripples and waves of industry and commerce are emanations of the activity of human beings.

When production, buying and selling began to develop the wants of a limited number were met by the efforts of a limited number. As civilization has extended and means of transportation have developed, the activity of different

peoples applied to the resources of the different lands are intertwined in the production of utilities which meet the wants of peoples of other lands. As ions are received and discharged by every particle of matter the force of electricity is received and discharged. So also does a human being who buys and sells receive credits and discharge debits. As particles of matter in combination and recombination receive and discharge greater currents of wider ramifications so also as human beings combine and recombine in business organizations credits are received in larger volumes and debits are emitted in larger volumes. As in the mass of matter of many particles the force received pervades every particle and the force emitted comes from every particle, so also in a business organization the credits received are diffused among all the human beings who compose the organization and debits are emitted from all these human beings. As the larger the volume of matter composed of diverse particles, the wider is the area and the more intricate the ramifications of the force which it emits and the wider is the area and the more intricate the ramifications of force which it receives, so also the larger the business organization the wider the ramifications of the debits which it incurs and the more extended the sources from which the intricate ramifications of credits are received.

As forms of inanimate matter enter into the make-up of an animate organism a development results which is different from that when they are combined and recombined in inorganic forms. The animate organism develops organs of perception, organs of locomotion, organs for taking possession of that which it wants, organs of digestion, organs through which the blood is formed and circulated and by slow degrees it develops the brain which directs and controls the voluntary activity of the body. So also as human

beings form organizations, the directing force, the brain of the organization develops. As in the development of production, buying and selling business organizations have evolved, there has evolved the directive force, the brain of the organization. As the brain is responsible for the voluntary activity of the body of a living organism, so also is the employer responsible for the activities of the organization which he directs. As to the continuing wholesome and healthful life of a living being is requisite that guidance by the brain which coördinates the activity of the organs of the body, so also, if a business organization is to continue to be of effective service to those whose wants it meets, the brain of that organization must preserve the wholesome co-ordination of those whose efforts are applied in its service. As the organs of the body must respond to the direction of the brain if the wholesome existence of the body is to be preserved, so also must those applying their efforts in the service of a business organization respond to the direction of its brain.

It is quite true that the different brains of different persons are of different capacity for directing their activities and so also are different employers of different capacity for directing the activities of their organizations. As passion and emotion lead many persons into manifestations that overwhelm mental guidance it often happens that the passions and emotions of those in the service of a business organization lead to manifestations that impair its wholesome continuance. What we designate as human nature pervades all production, buying and selling. Coördination and specialization are of slow growth and have suffered many retardations. In the light of the progress that has been obtained may be seen hope for greater progress to come.

In pool, lake and sea, as ripples and waves spend their force and subside, new ripples and waves arise. Subsiding

force meets rising force and ripples and waves go on. So also as volumes of substances emerge as final utilities that are used and consumed, ripples and waves of productive force rise and subside. The ripples and waves that subside as these utilities are used and consumed give rise to other ripples and waves as substance is produced and played upon by the ripples and waves of productive force by means of which it emerges in the final concrete utilities which are used and consumed and into instruments of production which are utilized toward the production of final concrete utilities.

In pool, lake and sea, as ripples and waves in narrower or wider, shorter or longer reaches, are rising and subsiding they are interlaced by other ripples and waves in every one of their changing phases. So also as substances pass through the ripples and waves of transformation into final utilities the ripples and waves in which productive force is applied to matter are interlaced with other ripples and waves in the application of productive force to matter.

As the force of ripples and waves is the force of drops of water, subject to the interrelations of the forces that act and react in their environment, so also are the ripples and waves of productive force, the force that emanates from human beings, subject to the interrelations of supply and demand. As the ripples and waves of productive force applied to matter rise from the production of substance and subside in the use and consumption of final utilities, they are intercepted by the ripples and waves of productive force applied to matter in the course of production of other substances and their transformation into final utilities. Every intersection is marked by a debit and a credit.

As volumes of substances are combined and recombined, as they are transformed and retransformed, every phase of combination and recombination, of transformation and re-

transformation, is marked by debits and credits. As volumes of substance emerge in final utilities which meet the wants of innumerable persons, every constituent part of that substance has been transmuted through a series of debits and credits into the final utilities for which debits are incurred by the final buyers. This is true whether the final utility be minute or massive. The results of measures of productive force applied to forms of matter meet human wants whether they be needles and thread that are diffused from the place of final transformation of the wires of steel and the threads of cotton to thousands and thousands throughout the nation or whether they constitute all that enters into the dwelling which a family occupies.

XXV

SUMMARY OF INDUSTRIAL DEVELOPMENT

AT the beginning of the hypothetical development of production, buying and selling it was stated that the outline would be illustrative and not historical. It is an outline in the abstract divested of all reference to warfare, conquest, slavery, despotism, feudalism, rivalry in international trade, divested of all reference to money and taxation. Although it is far from being an outline of the actual development, it is an exemplification of the underlying sequence of cause and effect. The actual development in the United States has been more nearly in accord with the hypothetical outline than that of any other nation. The early settlers from Europe did not begin with chipped and flaked stones as did their ancestors of ages past. They came in ships, brought hand-tools and other things of use made in Europe, and their supplies of these things they did not make for themselves were replenished from Europe. Although waves of the productive current of Europe accompanied the waves on which they sailed to the West, they virtually began life anew. Although many of the early settlers were trained in tilling the soil and in the handicrafts, the industrial and commercial progress of the United States has been in the main from the self-sufficiency of the families of the settlers, and has proceeded in the main in accordance with the outline which, at first entirely hypothetical and in the abstract, is in its later stages more nearly in accord with the actual.

That development is here summarized, but the summary is still in the abstract. The first buying and selling was the exchange between different families of surpluses of things of respective kinds produced by respective families over the quantities necessary to meet their own wants. Things exchanged had the ratio of exchange of the things for which they were exchanged. Things sold had the ratio of exchange of things bought. As ratios were expressed in dollars things sold had the ratio of exchange of the dollars received, and things bought had the ratio of exchange of the dollars paid. Nevertheless, things sold had the ratio of exchange of things bought, even though the dollars received for things sold at one time were paid for things bought at another time.

As through specialization and coördination things of particular kinds could be produced in the larger volumes which met the wants of a greater number of persons by the application of the effort of a smaller number of persons, there came to be specialization in the production of substances of various kinds, in their transformation into intermediate utilities of various kinds, and in the transformation of the intermediate utilities into final utilities of various kinds. Business organizations of employer and employees developed, specializing in these various stages and processes of production. In order that production might continue by specialized organizations of employer and employee it was necessary not only that the utilities of different kinds produced and sold by each organization have the ratio of exchange of final concrete utilities used and consumed by the employer and employees engaged in their production, but also that all concrete utilities produced and sold have the ratio of exchange of all utilized in their production.

The ratios of exchange expressed in terms of dollars of all utilities produced including tools and implements would

be determined by interrelations between supply and demand. The least that could be received by any organization that continued in business would be the dollars that would enable employer and employees to buy the final concrete utilities necessary to their existence and to enable the employers engaged in the production of substance and the various processes of its transformation to buy that which was necessary to the production and transformation. All of them would need final concrete utilities, but only portions of the dollars received from the sale of utilities of any kind could be expended for final concrete utilities.

As there came to be competing employers in each of the various stages and processes of production the more efficient employers who produced utilities of any kind with the application of less of effort would, at the prevailing ratios of exchange, expressed in dollars, receive profit. Less efficient employers would receive less profit. The least efficient, those who did not receive dollars for utilities sold equivalent to the dollars expended in their production would be driven out of production. Competition between employers would tend to force the prices of utilities to the lowest at which they could be produced in volumes sufficient to meet the demand by the more efficient employers. As more efficient employers in each of the various stages and processes of production received profit the volumes of utilities produced would increase. If the number of employees seeking employment increased in greater proportion than the production of utilities employers would not be obliged to increase their wages above the dollars requisite to enable them to buy the final concrete utilities necessary to the maintenance of their existence. If the number of employees seeking employment did not increase in as great proportion as the production of utilities to which the application of their efforts was necessary employers would be obliged to pay them

as wages greater proportions of the dollars received from the sale of utilities. In order that the employers might continue in increasing production the efforts of employees would have to be applied in the production of utilities in the volumes for which dollars could be received that would enable the payment of their wages and the continuing purchase of all that requisite to continuing production and that would yield a surplus as profit. More efficient employers might be willing to pay trained, experienced and especially serviceable employees higher wages than they could obtain from less efficient employers.

As steam came into use as power, employers who had received profit could make investments in all that was requisite to the construction of the new instruments of production. Although for a time the processes of production were dislocated, the construction and utilization of the new instruments required the efforts of an increasing number of employees. In order that production by means of the new instruments might continue and increase it was necessary that the dollars received from the sale of utilities produced by means of their utilization have the ratio of exchange of the final concrete utilities used and consumed by the employer and employees of a business organization, and of that requisite to their continuing production including the cost of the instruments, their repair and renewal. By means of their utilization concrete utilities of all kinds were produced in greater volumes. Productive force no longer consisted exclusively of human effort applied by means of hand and hand-tools, but in great proportion of force generated and applied by means of the instruments of production. A decreasing number of employees was requisite in each stage of production of a given volume of utilities, but as the volumes of substances increased the volumes of intermediate utilities and final utilities into which they were transformed

increased, the effort of more employees was required in the increasing production. The effort of more employees was required in the repair and renewal of the instruments in use and in the construction of new instruments.

As through the utilization of the new instruments of production utilities of all kinds were produced in vastly greater volumes in relation to the productive force applied, final concrete utilities were produced not only in volumes sufficient to meet the wants of those engaged in their production, but in greater degree in volumes sufficient to meet the wants of those not engaged in their production.

As utilities of different kinds were produced in increasing volumes in relation to the productive force applied more dollars had to be paid for land because it became more serviceable, but the number of dollars paid and received for land or paid and received for the right to its utilization depended upon proportions of the dollars received from the sale of utilities produced that were available after dollars had been expended for human effort and for the utilization of all requisite to production.

As the volume of production increased in relation to the productive force applied efficient business organizations obtained profit which was invested in increasing the production of utilities of kinds which had been produced, or in the production of new utilities as discovery and invention led to the utilization of substances in new ways or to the utilization of new substances. This increasing variety of production increased the demand for the effort of employees, and it increased the endeavor of the producers to sell the utilities produced. Utilities wrought through elaborate workmanship of substances that are rare cannot be produced in volumes sufficient for diffusion throughout the entire population, but utilities that are not only indispensable but contribute to the comfort and wholesomeness of living have

been produced in increasing volumes of kinds and grades that have been more and more widely diffused among the employees applying effort in their production and among those engaged in activity of other kinds.

The invention of new instruments of production facilitates the stages and processes of production from which final concrete utilities emerge, and enables the production of new utilities. Many instruments of production and parts entering into the construction of these instruments are of such character that they facilitate all production. For example, a railroad company is a business organization which produces the utilities of transportation by the utilization of instruments of production and structures in the form of cars and locomotives, track and its appurtenances. The function of the railroad is the conveyance of traffic, principally of the freight into which enters virtually all utilities that meet the wants of the entire population and all of the forms of matter utilized in the production of these utilities. Whatever facilitates the conveyance of freight facilitates all production. Many persons still living can recall the time when starting a train meant the transmittal of force from the locomotive which gave a jerk to the first car which gave a jerk to the second car, and so on to car after car until the train was in motion, and when stopping a train involved a series not of jerks but of bumps. Either starting or stopping sometimes required several minutes and a train could not be brought to a full stop until it had traversed a considerable portion of the track. The invention of the air brake by means of which the hand of the engineer in the locomotive applied force that instantaneously set a brake against every wheel in the train, and the invention of the couplers and buffers, by means of which a train was welded into a solid projectile, overcame the jerking and bumping of the starting and stopping. The air brake ministers to the

comfort of every person who travels. It contributes to the attainment by every person of the utilities he uses and consumes in greater volume and variety than otherwise would be possible in that it enables the railroads to move vastly greater volumes of freight in relation to the productive force applied in the movement. In the construction, repair and renewal of air brakes is required the effort of thousands of employees, the utilization of land, instruments of production and of the forms of matter to which productive force is applied in transforming them into air brakes.

As production becomes more and more specialized, as substances obtained from widening areas are transformed into final concrete utilities which are distributed over widening areas, the productive force applied by business organizations results in the production of utilities that meet the wants of an increasing number of persons in the widening areas. As the utilities of these respective kinds are produced in larger volumes in relation to the productive force applied, and the utilities so produced are diffused among a greater and greater number of persons in extending areas their respective wants are respectively met by the application of less and less of productive force. An increasingly important factor in this development is the service of the railroads which, like all other business organizations, utilize land, instruments of production, structures, materials consumed in the processes of production, and human effort. The greater the volumes in which utilities of all kinds are moved by the railroads in relation to the productive force applied the greater are the measures in which utilities of respective kinds pass for the use and consumption of the entire population.

Human existence is so Protean that analogy may be drawn between phases of its manifestation and phases of the manifestation of existence in its environment.

A native forest such as the settlers on the western shores of the Atlantic found three hundred years ago contains massive trees, smaller trees, vines and shrubs, plants and grasses, all filling their places in the environment. Among them are weeds that grow apace and parasites that prey upon plants and trees, draining their lives in order to live themselves. The economic organization may be compared to the native forest. There are great business organizations and smaller business organizations, there are business organizations of delicate ministrations that may be likened to the shrubs and vines, and there are those that minister to the beauty of living as do the verdure and the flowers. There are the weeds of the underworld, the physical, mental and moral defectives; there are the parasites who seek sustenance from the productive current to which they make no manner of contribution.

The forest will not flourish unless roots, stalks, branches and stems receive the nourishment that enables them to flower and yield seed. If the weeds encroach upon its wholesome growth and the parasites drain its life the forest will decay. So also, if the industrial organization which man has evolved is to flourish for the welfare of mankind, its roots, trunks, branches and stems must be preserved in order that they may flower into the utilities which men use and consume and yield seed in order that their life may continue and increase. The continual maintenance, replacement, renewal and construction of instruments of production is essential to the flowering into the fruits which all persons use and consume. If the fruits are all used and consumed at the time of yield there will not be the seed of profit for future growth.

To the wholesome growth of the industrial organization it is essential that the transmutation of credits into debits and of debits into credits serve not only the buying and sell-

ing of the utilities that all persons immediately use and consume, but also the maintenance of the roots, trunks, branches and stems, and the growth of new roots, trunks, branches and stems that will flower and bear fruit for the increasing population. Every credit received ought to be in payment for that which ministers to wholesome existence or is utilized toward ministering to wholesome existence. Every debit incurred ought to be in payment for that which ministers to wholesome existence or is utilized toward ministering to wholesome existence.

XXVI

SCIENTIFIC RESEARCH, THE PROFESSIONS, AND THE ARTS

As a pyramid rests upon its base the social organization rests upon the broad tiers of the economic pyramid in which productive force is applied to matter in the production of food, clothing and shelter. Because in greater proportion the wants of the entire population are for these indispensable final concrete utilities the efforts of the greater proportion of the population are applied in their production. Those who are without the inclination or the aptitude for other activity are obliged to apply their efforts in the ways for which there is the greatest demand. Those with the inclination as well as the capacity for effective activity in the stages and processes of concrete production find zest in the application of their efforts, satisfaction in the exercise of responsibility and gratification in the reward. In ministering to the desire for recreation, entertainment, information, intellectual and moral stimulus and to the spiritual life are applied the efforts of smaller proportions of the population.

As production increases and diversifies nearly every able-bodied person of ordinary intelligence and with no more than an elementary education can find employment in which little or no specialized skill and training are requisite at the beginning. Entry upon scientific research or the practice of the professions or the arts demands especial aptitude and especial preparation. From the resources of the family, by the aid of friends or by work and saving, must be obtained the credits sufficient to the maintenance of existence and to the provision of that essential to a long course of training.

He who enters upon a scientific career does not compete for credits expressed in terms of dollars, but for credits expressed in terms of contribution to human knowledge. Although the scientist does not produce and sell utilities for which dollars are received, he exerts effort emanating from the brain, which is supported by the body, and his body is supported by the current of production of concrete things.

The research of the scientist may result in the attainment of that which does no more than add to the sum of human knowledge; it may result in the attainment of information of which what is designated practical use is made; it may be baffled by the problem and result in nought but the endeavor. None the less to the discoveries of science and the organization of knowledge by the scientist is due not only the widening reach of human ken but the broadening of the field of production, buying and selling. Science was once considered apart from the world of affairs. More and more is it recognized as the pivot on which that world moves.

Specialization has developed in science as in all other fields. There are scientists, associations and organizations of scientists, devoting their lives to the fathoming of secrets as yet unpenetrated in the planetary space, in the earth, the air and sea. They are studying the soils and the elements of the soils, the rocks and the constituent parts of the rocks, the plants and the animals of use to man and all that affects their growth and their serviceability to him. They are studying the manner in which the sources of all that is utilized by man are subject to the action and reaction of forces beyond the will of man and ever are finding ways to bring these forces increasingly under his control. They are studying the manner in which the force applied by man acts and reacts upon that to which it is applied, and devising means by which its application may be made of greater service.

Portions of the credits derived from taxation by the governmental organizations are applied to the extension of scientific research but in far greater proportion the credits, by means of which it is maintained and advanced, are derived from the profit of those whose efforts have resulted in the production of the concrete utilities in the increasing volumes which meet the wants of increasing numbers of persons. By the efficient application of productive force to forms of matter they have served the welfare of the population. In large measure their reward is devoted to fostering the research that not only yields the satisfaction accorded by a broader understanding of all existence, but also leads to the greater serviceability of man unto man.

The scientist needs indispensable final concrete utilities and the instruments and appliances of use in his research. A scientific organization utilizes land, instruments of production, structures and human effort. The greater the flow of the productive current into the channels of scientific research, the greater the benefit to the human race. The greater the volumes in which the concrete utilities of universal use and consumption are produced in relation to the measures of productive force applied to measures of matter in their production, the greater are the proportions in which the productive current may flow into these channels. Not only do business men contribute to the endowment and to the maintenance of scientific organizations, but many business organizations have departments devoted to scientific research and give continuous employment to scientists engaged in the study of all that enters into the processes of production for which they are responsible.

Those engaged in the practice of the professions and the arts apply effort that results in immediate personal ministrations, or in the production of works of art that minister to the intellect, the esthetic and the moral sense. They re-

ceive credits from the sale of that produced and must incur debits in its production. They must have the indispensable final concrete utilities, and they must have the instruments and appliances requisite to the rendering of their services. They may not compete in the sense of competition in business but none the less those for whose services there is the greater demand, receive the greater reward. The less efficient receive less reward and those for whose services there is not a compensatory demand are forced into other vocations.

There are associations of those engaged in the practice of the professions and even business organizations composed of employer and employees. Of such are the legal firms: some are constituted of many partners and have many employees. Successful physicians have staffs of assistants and nurses, and may have private sanitariums. There are the hospitals for the many and these owe their existence and their maintenance in by far the greatest measure to the endowments and bequests of those who have turned profit obtained from the current of production into the channels of this ministration. More and more physicians specialize in their practice, and more and more do they devote their efforts not only to remedying but to the prevention of disease.

A musician may apply his efforts as an individual in filling engagements or in teaching. There are associations of musicians and business organizations of musicians. Of such are the orchestras. A half century ago here and there in a large city was a permanent orchestra; now there are many in many cities giving concerts in other cities and even in smaller towns throughout the country. Credits are obtained from the sale of tickets of admission, but in order to incur the debits necessary to its continuing existence nearly every orchestra is obliged to resort to benefactors, who, as a rule, have obtained profit in production, buying and selling.

The painter and the sculptor apply their efforts as in-

dividuals. They do not compete in the sense of business competition, but like those engaged in the practice of the professions they receive reward in the degree that there is demand for the works in which their conceptions are embodied.

There are never more than a few composers, virtuosos, singers, painters, sculptors of the highest order on the earth at any one time, but the number of those of acceptable service increases as in greater degree a greater proportion of the population desires the services they render, and are willing to pay portions of the credits which come to them for their attainment.

Specialization extends in the field of the drama. The manager succeeds or fails as he produces the plays, which in greater or less degree meet the demand. In the production of plays is utilized the structure constituting the theater and the land upon which it is erected, instruments of production in providing that requisite to the performances, the effort of the actors and of the other employees whose services are essential. Like all other business organizations the theater is obliged to obtain the credits which offset the debits incurred. The admissions to a theater are paid from the credits received in the various stages and processes of production, buying and selling, and have the ratios of exchange of portions of the utilities sold in payment for which they were received.

The application of effort in scientific research, in the practice of the professions and the arts, and the provision of all by means of which and to which effort is so applied, are made possible by the liberation of effort from the production of the concrete utilities necessary to the maintenance of human existence, by the attainment of a surplus of profit over that which must be paid for the continuance of production. As profit increases and the command over utili-

ties received by those who apply effort increases a larger proportion of credits may be transferred by them in payment for the service that ministers to the intellect and the artistic sense and the volumes in which that service is rendered increase.

An all-important service is that of the teacher. The public schools of the United States are supported by taxation. The nation and the states make contribution for the support of the agricultural colleges and other educational institutions. In great measure these colleges, and in still greater measure the great universities, are maintained by the endowments and bequests from those who have amassed fortunes in concrete production, buying and selling. As in the fostering of scientific research so also in promoting the diffusion of knowledge of its results they devote to the service of the intellectual advancement of the nation portions of the reward they have obtained for contribution to its material welfare.

So long as material reward is obtained under the conditions of fair competition from the application of effort or the provision and utilization of that by means of which and to which effort is applied in enhancing the welfare of the population, no one is deprived who has received reward in less degree. As those who have property in that utilized in production, buying and selling obtain, under conditions of fair competition, reward which enables them to live without applying their individual effort in any of its processes, no one is deprived. There is an extending practice of those who are not obliged to apply their efforts in ways for which material reward is received, to apply them in ways of benefit to their fellow men, from which material reward is not received. Every community affords opportunity for such service.

PART III

THE SIGNIFICANCE AND SERVICE OF
THE DOLLAR

XXVII

THE DOLLAR

THE almost universal conception of the dollar is not of a unit by which utilities are exchanged for other utilities but as the unit of what is designated as money. The seller receives money for utilities sold and the buyer pays money for utilities bought. That is, the dollar is considered to be a unit of a utility designated as money which is separate and distinct from the measures of the other utilities for which it is paid and in payment for which it is received. This was entirely true throughout many centuries. To a far less degree is it true at the present. When exchanges were effected solely by the receiving and paying of an intermediary of exchange in the form of a concrete utility designated as money, the prices of utilities expressed in terms of units of such an intermediary were determined not alone by interrelations between the supply of and the demand for utilities in the selling and buying of which money was received and paid. They were determined in part by interrelations between the supply of and demand for such utilities and the supply of and demand for money. These latter interrelations continue to have an effect in determining the prices of utilities as expressed in terms of the unit of exchange, but with the development of the monetary and banking systems that effect has tended to become less.

As utilities are bought in terms of the unit of exchange and sold in terms of the unit of exchange, it follows that the unit of exchange essentially and ultimately designates the measures of utilities which are sold and bought. If there

were no fluctuations in the supply of money in relation to the selling and buying of utilities in accordance with the interrelations between the supply of and demand for utilities, the ratio of exchange would be determined absolutely and entirely by these interrelations. In the immediately following discussion, we will consider that the ratio of exchange is thus determined, leaving a discussion of money for later chapters.

A measure of things and services, that is, the measures of utilities of any kind which can be obtained in exchange for a given measure of utilities of any other kind, indicates the "purchasing power" of that utility. Purchasing power is really in the will of him who sells. But what he will accept in case a sale is made depends also upon the will of him who buys. The concurrence between the minds of a possible seller and of a possible buyer tends to determine the measure which will be accepted and the measure which will be paid.

That which is bought for a dollar and that which is sold for a dollar have the same ratio of exchange. If the unit of exchange be considered to be a specified measure of a concrete utility which serves as an intermediary of exchange, it is that measure of that utility which constitutes a dollar. By the same reasoning the measure of a utility of another kind for which that measure of the utility used as an intermediary is exchanged constitutes a dollar. That is, the measure of any utility having the ratio of exchange of one dollar may be designated as "one dollar." Thus a measure of that which is sold and a measure of that which is bought each constitutes from the standpoint of selling and buying one dollar. When it is said that the price of a utility is high, it is meant that a smaller measure of that utility has the exchange ratio of a dollar; when the price is low, a larger measure has the exchange ratio of a dollar. When the supply of a utility of one kind, wheat for example, is

large in relation to the demand, a larger measure of wheat will have the exchange ratio of a dollar, will constitute a dollar. If at the same time the supply of another utility, potatoes for example, is small in relation to the demand, a smaller measure of potatoes will have the exchange ratio of a dollar, will constitute a dollar. As the dollar is the unit of exchange it follows that all prices expressed in terms of dollars are expressions of the ratios in which utilities exchange for utilities.

As sellers endeavor to secure the greatest number of dollars they try to obtain from that which they sell the greatest attainable command over utilities. As buyers endeavor to pay the fewest dollars they try to obtain for the dollars they pay the greatest command over utilities. He who sells utilities may not immediately desire to buy other utilities. Therefore, it is essential that when utilities are sold the dollars received be in the form of a certificate which the seller can use when he may so desire in the purchase of other utilities. A primary purpose of what is commonly designated as money is to certify that utilities have been sold for a specified number of dollars in return for which other utilities to that number of dollars may be bought. The extent of the acceptability of such certificates depends upon the extent of the belief that they will serve that purpose, that they will be accepted by him who sells and therefore may be used by him who buys.

The unit of exchange is a unit of measurement in that it indicates the respective measures of utilities of different kinds which have the exchange ratio of the unit of exchange. When we speak of a unit of measurement, we ordinarily imply the stability of that unit. We are accustomed to units of measurement which indicate a fixed number, a fixed quantity, a fixed weight, a fixed length, a fixed area. Nevertheless, these units of measurement are frequently applied to

that which is measured. For example, we speak of a dozen eggs as a dozen, of a pound of meat as a pound, of a bushel of potatoes as a bushel, of an acre of land as an acre. So also we can use the dollar or a number of dollars in designation of a measure of a utility which has the ratio of exchange of a dollar or a number of dollars. Thus a dozen of eggs may be designated as a half dollar, a bushel of potatoes as one dollar, an acre of land as three hundred dollars.

In that the dollar indicates a measure of a utility which has the same exchange ratio as a measure of another utility, and in that the measures of respective utilities which have the same exchange ratio vary in accordance with fluctuations in the interrelations between the supply of and demand for utilities, the dollar is a shifting unit. Its relation is not like that, for example, of ten to number, of a pound to the force of gravity, of a bushel to cubic space, of a foot to length, of an acre to area. Its relation is that of a measure of one utility to a measure of another utility from the standpoint of selling and buying. Its relation in the case of concrete utilities is that of a measure of utilities resulting from the application of productive force to matter to a measure of other utilities resulting from the application of productive force to matter.

If the dollar were a stable unit, a fixed measure of one utility would always have the same exchange ratio as a fixed measure of another utility. If utilities of a given kind were produced in larger volume in relation to other utilities, and the same respective measures of other utilities were paid for the fixed measure of that utility, there would be a surplus of utilities of that given kind which could not be sold at all. Buyers would not have the benefit of the lower prices that otherwise would be caused by an increase in the supply of that utility in relation to the demand. If utilities of a given kind were produced in smaller volume in relation to other

utilities, and a fixed measure of those utilities had the same exchange ratio as respective fixed measures of other utilities, those utilities could be bought only by a smaller number than might be willing to pay larger measures of other utilities rather than to do without them. Sellers would not have the benefit of the higher prices that otherwise would be caused by the decrease in the supply in relation to the demand.

XXVIII

CREDITS AND DEBITS EXPRESSED IN DOLLARS

ALL credits are expressed in terms of dollars and all debits are expressed in terms of dollars. That in which a person has property is to his credit. If he keeps record of that in which he has property, the amount of that credit is expressed in terms of dollars. That expression may be of the number of dollars he paid for it. As it deteriorates he may, because of depreciation, write down the number of dollars in which it stands to his credit. If the changing interrelations between supply and demand be such that a greater number of dollars could be obtained in case of sale he may, because of appreciation, write up the number of dollars in which it stands to his credit.

All business organizations have books in which they keep records expressed in dollars of all in which they have property; in which they keep record of the credits expressed in terms of dollars obtained from those who have invested accumulated credits in a share in the proprietorship of the organization; in which they keep record of credits expressed in dollars, the right to the utilization of which has been accorded to them under pledge of payment for the right to utilization of these credits, and for their return. They keep record on their books in terms of dollars of all debits incurred in payment for the right to the utilization of that in which they do not have property, of the debits incurred in payment for the application of human effort and for the materials consumed in the processes of production.

Organizations engaged in the transformation of substances into intermediate utilities keep record expressed in terms of dollars for all debits incurred for substances. Those engaged in the transformation of intermediate utilities into further forms of intermediate utilities or into final utilities keep record expressed in terms of dollars of the debits incurred for intermediate utilities. Those engaged in the assembling and storing of final utilities for wholesale and in the assembling and storing of final utilities for retail, keep record expressed in terms of dollars of the debits incurred in the purchase of final utilities. All business organizations keep record expressed in terms of dollars of the credits received from the sale of utilities for the production of which they are responsible—from the sale of substance, of intermediate utilities, of final utilities, from the sale of instruments of production and from the sale of utilities of transportation. They keep record of the dollars received in payment for the right to the utilization of dollars which they may have accumulated, of which they may have disposed to others, and in payment for the utilization of lands and instruments of production in which they have property, but which are utilized by others.

As all production, buying and selling involve a continual flow of credits and debits and all credits and debits are expressed in terms of dollars, all production, buying and selling, involve a continual flow of dollars from those who buy to those who sell and from those who sell to those from whom they buy.

As all business organizations engaged in every stage and process of the production of concrete utilities utilize land and instruments of production, they must either have property in the lands and instruments utilized or pay for the right to their utilization.

If such an organization does not have property in the land

it pays to those who do that number of dollars specified in the contracts under which it is utilized, the number of dollars determined by interrelations between supply and demand at the time the contracts were made. Those who accord the right to the utilization of land seek to obtain as great a number of dollars in payment for its utilization as any one would pay. If such a business organization has property in the land it utilizes it endeavors to obtain from the sale of utilities produced that number of dollars in payment for its utilization which could be received from others if the right to its utilization were disposed of to them, or as great a number of dollars as it would have to pay for the right to its utilization if it did not have property in it.

If such a business organization does not have property in instruments of production it utilizes, those to whom it makes payment for the right to the utilization will seek to obtain as great a number of dollars as they could secure from any one. They seek to obtain that number of dollars which will reimburse them for the dollars expended in the provision of the instruments of production by the time their usefulness is at an end, and in addition that number of dollars in payment for the right of utilization which will reward them for according that right. This is the same as obtaining that number of dollars which would reward them for the utilization of the dollars which were expended in the provision of the instruments of production. If an organization has property in the instruments of production which it utilizes, it will endeavor to obtain from the dollars received from the sale of the utilities for the production of which it is responsible that proportion which will reimburse it for the dollars expended in their provision and which will also yield a reward equivalent to that which could be obtained from disposing of the right to the utilization of these dollars to others or as great as they would pay to others for

the right to utilization of these dollars if they did not have property in them.

Every business organization utilizes human effort. It keeps record of the debits incurred for wages and salaries in terms of dollars.

Inasmuch as every transaction is both a sale and a purchase each party to the transaction incurs debits expressed in terms of dollars and receives credits expressed in terms of dollars. Thus in making record of a transaction a business organization is obliged to make a double entry—an entry to credit and an entry to debit in the same amount.

This double entry system of keeping accounts was developed by the medieval commerce of Italy, fell into disuse for centuries and was revived by the industry and commerce of the earlier decades of the nineteenth century. It enables a business organization to check credits received against debits incurred, to trace all that it buys and all that it sells.

More than this, as every business organization makes a credit and a debit entry for every transaction, the organization to which it sells or from which it buys also makes a double entry—an entry to credit and an entry to debit. If all business organizations and all individuals practised the "double entry" system there would be record of the debits incurred in all the stages and processes of producing utilities and of the credits received from their sale as they emerged from these processes until they were finally used and consumed.

XXIX

THE STAGES AND PROCESSES OF PRODUCTION

THERE is usually a clear or a fairly clear distinction between one and another of the stages and processes which have been designated in the preceding pages as the production of substance, the transformation of substance into intermediate utilities, the transformation of intermediate utilities into further intermediate utilities, the transformation of intermediate utilities into final utilities, the assembling and storing of final utilities for wholesale, the assembling and storing of final utilities for retail, the transportation of utilities, the production of instruments of production and the production of materials consumed in the processes of production. A business organization may specialize in one or another of these stages or processes or it may engage in two or more related stages and processes, as is frequently the case with organizations doing business on a large scale whose development has been conspicuous within recent decades.

An organization engaged in the production of substance may also transform it into intermediate utilities. Very often an organization engaged in the transformation of substances into intermediate utilities will also engage in the transformation of the intermediate utilities into further intermediate utilities; an organization engaged in the production of final utilities may produce the intermediate utilities which it transforms into them. This conduct of two or more successive processes or correlated processes is sometimes designated integrated production. An extreme example is that of the great corporations engaged in the production of steel

and certain of the products into which steel is transformed. They have property in the mines from which iron ore, coal and manganese are extracted, in the instruments by means of which the ore is transformed into steel and in other instruments by means of which steel is transformed into intermediate utilities of various kinds and in some cases have property in railroads which convey minerals from the mines to the mills and intermediate utilities from one place of transformation to another. Such organizations as these seldom engage in the production of final utilities. Their production is of the nature which requires ponderous instruments by means of which productive force is applied in mighty measures in the transformation of massive volumes of substance. Such an organization may construct the instruments of production which it utilizes.

Some business organizations specializing in the processes, usually more delicate and intricate, of transforming intermediate utilities into final utilities have warehouses in which their products are stored in large quantities and sold direct to final buyers or from which they send supplies to retail establishments in which they have property in many communities. Some business organizations, selling final utilities at retail, have property in the factories in which intermediate utilities are transformed into these final utilities. Some of these organizations have property in the establishments in which are produced the intermediate utilities which they thus transform. Some organizations even have property in the sources of substances, in the establishments wherein are conducted the successive processes from which final utilities emerge, and in the establishments where these final utilities are sold at wholesale and at retail.

Productive force is applied in manufacturing boxes, barrels, bottles and other "containers" in which utilities are packed for transportation and storage. Such production

may be effected for its own use by an organization producing and selling utilities on a large scale, or containers may be purchased from organizations which specialize in their production. The dollars expended in their purchase enter into the cost of producing utilities for which the buyer pays. Large scale business organizations may have the paraphernalia of a printing office which they utilize in the preparation of the labels that are pasted on the containers. Other business organizations specialize in the production of such labels. There is specialization in the production of the signs by means of which organizations indicate the kind of business in which they are engaged and of the posters and placards by means of which they advertise their wares. Organizations specialize in the production of the stationery which is used in larger or smaller volume by all business organizations, in the production of typewriting machines and various appliances utilized in keeping records.

Whether a business organization specialize in the production of utilities of one kind, or of a limited number of related kinds, or whether it engage in the production of utilities of many kinds involving a number of stages and processes, it seeks to obtain profit not only from the sale of the total volume of utilities but from the sale of utilities of each kind and grade. It endeavors to keep records that will indicate as nearly as may be possible the dollars expended in the production of utilities of each kind and grade and of the dollars received from their sale. A business organization engaged in large scale production, involving various stages and processes in the production of utilities of many kinds and grades, delegates the responsibility for each stage and process to a manager or a head of a particular department. It keeps record of the dollars expended and the dollars received by that department virtually as they would be kept if that department were a separate business organization.

Whether various stages and processes of production are conducted by separate business organizations, or whether one business organization is responsible for one or more of these stages and processes, all phases of production, buying and selling of concrete utilities may be broadly grouped. They consist of the production of substance, the transformation of substance into intermediate utilities, the transformation of intermediate utilities into further intermediate utilities, the transformation of intermediate utilities into final utilities, the assembling and storing of final utilities at wholesale, the assembling and storing of final utilities at retail, the transportation of utilities, the construction of instruments of production, and the production of materials consumed in the processes of production. Substances and intermediate utilities may be stored awaiting sale for further transformation. The continuance of production, buying and selling involves the continual incurring of debits expressed in dollars and the continual receiving of credits expressed in dollars. The dollars which are paid are determined by the interrelations between supply and demand at the time of purchase, the dollars which are received are determined by the interrelations between supply and demand at the time of sale. The sequence of these interrelations may be traced in broad outline. The purpose will be sufficiently served if they are traced under the supposition that the respective stages and processes of production, buying and selling are conducted by respective business organizations.

That which is paid for utilities at the time of purchase is the price. As the dollar is the unit of exchange, the price paid for utilities is the number of dollars paid by the buyer and received by the seller. A measure of utilities may have the price of one dollar, of a fraction of a dollar, of a multiple of a dollar, or of a multiple and a fraction of a dollar. Prices will continue to be indicated in terms of dollars.

XXX

INTERRELATIONS BETWEEN SUPPLY AND DEMAND

RETAIL organizations have stocks of final utilities awaiting sale. They have paid the wholesale dealers for them the prices determined by interrelations between supply and demand at the time of purchase. Their experience in the past and estimate of the future are guides in determining the volumes of utilities of the respective kinds they buy and the prices upon which they believe they can obtain profit. The number of dollars received cannot be determined until utilities have been sold. The organizations are aware of the dollars which must be obtained for utilities of each kind and grade if they are to secure profit from assembling, storing and selling them. They will endeavor to obtain prices which will yield the greatest profit. Competition between retail dealers compels utilities of the same kinds and grades to be sold at approximately the same prices under similar conditions at the same time and place. The expectation of retail dealers of securing profit from the sale of utilities of certain kinds and grades may or may not be realized. They may succeed in disposing of certain proportions of utilities of a given kind at a profit, or in order to dispose of the remainder of the stock may be obliged to reduce the price. A careful retail dealer will scrutinize the relation between the prices he pays for utilities of respective kinds and grades and the prices received for them. He will increase his orders for utilities of the kinds and grades for which there is a continuous and increasing demand, and from which he obtains the

prices which yield profit. He will diminish his orders for utilities of the kinds and grades for which there is diminishing demand and he will cease to buy them when they cannot be sold at prices which contribute to his profit. The retail dealers who are most efficient in forecasting the demand and in selling the greatest volumes of utilities in relation to the dollars expended in buying, assembling, storing and selling them, obtain the greatest profit. They can extend the quarters which they occupy, buy utilities in larger volumes, increase the number of their employees. The less efficient retail dealers secure profit in smaller degree, the least efficient are driven out of the business. As the assembling and storing of utilities for sale at retail must continue, portions of the dollars paid by final buyers for final utilities must pay for the costs of assembling, storing and selling them. From the most efficient dealers they will obtain them at the lowest prices at which they can be sold: the most efficient dealers will obtain the greatest profit from their sale.

Because of differing tastes and habits, the demand of final buyers for final utilities may be different at different places. There is a difference in the demand of different final buyers in the same community, especially if it be a large city. Respective retail dealers may continue to buy utilities of certain kinds and grades, while other retail dealers may not. The orders received by wholesale dealers from all retail dealers for final utilities of respective kinds and grades, guide the wholesale dealers in determining the kinds and grades of final utilities which they will buy from the manufacturers.

Experience of the past and estimate of the future enter into the determination of the volumes of final utilities of the respective kinds and grades which wholesale dealers buy from the manufacturers. They pay for them the prices determined by the interrelations between supply and demand at

the time of purchase. The prices received for them are determined by the interrelations between supply and demand at the time of sale. Different wholesale dealers may buy utilities of different kinds and grades in different proportions but each wholesale dealer will endeavor to buy final utilities of the kinds and grades and in the volumes which can be sold to retail dealers at prices which contribute to his profit. Their orders for utilities of the kinds and grades for which there is diminishing demand or from the sale of which their profit diminishes will decrease. They may reduce the prices in order to dispose of stocks on hand. When they cannot be sold except at a loss, their orders will cease. Their orders for utilities of the kinds and grades for which there is increasing demand and from the sale of which they obtain profit or increasing profit, will increase. Wholesale dealers who buy utilities to the best advantage and sell them in greatest volume in relation to the dollars they have expended in assembling, storing and selling them, will obtain the greatest profit. They can increase their purchases of utilities, extend the quarters which they occupy, and increase the number of their employees. Other wholesale dealers may obtain different degrees of profit. Those who continuously sustain loss will be driven out of the business. Because final utilities must be continuously assembled and stored for wholesale, portions of the dollars paid by retail dealers must pay for the cost of assembling, storing and selling them at wholesale.

The business organizations engaged in the transformation of intermediate utilities into final utilities buy intermediate utilities at prices determined by interrelations between supply and demand at the time of purchase. They pay dollars for all which is utilized in the transformation at prices determined by interrelations between supply and demand at the time of purchase. They endeavor to produce

final utilities of the kinds and grades, and in the volumes which they believe can be sold at prices which yield profit upon all of the costs of production. They scrutinize the relations between the costs of producing utilities of respective kinds and grades and the dollars received for them. Final utilities for which there is diminishing demand and from the sale of which diminishing profit is secured will be produced in diminishing volume. When they cannot be sold except at a loss their production will cease. Manufacturers specializing in their production will be obliged to produce utilities of other kinds and grades, or will be driven out of production. Final utilities for which there is increasing demand and from the sale of which profit can be secured, especially if increasing profit can be secured, will be produced in increasing volume. The most efficient organizations will obtain profit in the greatest degree. They seek to buy intermediate utilities of the kinds and grades which can most efficiently be transformed into the final utilities they produce, to provide instruments of production which can most efficiently be utilized in the transformation, to obtain employees whose efforts are of respective grades of quality and degrees of efficiency in the proportions in which they can most efficiently be utilized in that production which contributes to profit. Even though many manufacturers by increasing efficiency in the utilization of all which they utilize in production may be able to increase the volume of utilities produced in relation to a given number of dollars expended in their production, they will, nevertheless, sooner or later, as the population increases and the demand continues to increase, be obliged to increase the number of their employees and to increase the provision of all which they utilize in production.

It is likewise with the business organizations engaged in the production of intermediate utilities. They seek to pro-

duce intermediate utilities of the kinds and grades and in the volumes which can be sold at a profit. They will decrease the production of intermediate utilities for which there is diminishing demand or from the sale of which profit diminishes. If the demand for intermediate utilities of certain kinds and grades so diminishes that profit cannot be obtained from their production and sale, their production will cease. Business organizations, specializing in the production of such intermediate utilities will be obliged to produce other utilities or will be driven out of production. Producers of intermediate utilities scrutinize the relation between the dollars expended for every factor which enters into their production with the dollars received from their sale. They seek to buy substances of the kinds and grades which can most efficiently be transformed into the intermediate utilities they produce, to obtain instruments of production which can most efficiently be utilized in their production, to secure employees whose efforts are of respective grades and qualities and degrees of efficiency in the proportions in which they can be utilized toward the securing of profit. The more efficient organizations producing intermediate utilities of the same kinds and grades will receive the greater profit, the less efficient will receive smaller profit and the least efficient will be driven out of their production.

It is so also with business organizations engaged in the production of substances. They seek to produce substances of the kinds and grades which can be sold at a profit. They scrutinize the relation between the dollars expended in production and the dollars obtained for substance produced. There will be diminishing production of the substances for which there is diminishing demand and from the sale of which profit diminishes. The production of substances which cannot be sold except at a loss will cease. The more efficient business organizations producing substances of cer-

tain kinds and grades will receive the greatest profit, less efficient organizations will receive a smaller profit, and the least efficient will be driven out of their production.

It is so also with business organizations engaged in the production of instruments of production and business organizations engaged in transportation. The business organizations engaged in transportation, however, do not have property in the utilities which they transport and do not sell them. Their traffic rises and falls, and as a rule their profit concurrently rises and falls, with the increase or decrease in the demand for utilities in general. As the demand for utilities of certain kinds and grades diminishes their transportation of such utilities decreases. As the demand for utilities of certain kinds and grades increases, their traffic in such utilities increases.

XXXI

THE TRANSMUTATION AND BALANCING OF DOLLARS

As production, buying and selling continue, productive force is ever being transmuted into utilities and utilities produced are ever being paid for the productive force applied in the production of utilities for sale in the future. As payment is made for productive force in terms of dollars and payment is made for utilities produced in terms of dollars, it may be said that dollars are transmuted into productive force as final concrete utilities are used and consumed by human beings engaged in the various stages and processes of production, and that dollars are transmuted into utilities produced as concrete utilities emerge from the application of productive force to matter in these various stages and processes.

The flow of debits and credits expressed in terms of dollars is a continual balancing of the dollars transmuted into productive force and into the forms of matter to which it is applied against the dollars into which utilities are transmuted when they are sold. There never can be an exact balancing at any time. At any given time business organizations have property in lands and instruments of production into which dollars have been transmuted in the past and which are continuously utilized in the production of utilities which will be transmuted into dollars in the future. At any given time business organizations have transmuted dollars into human effort applied in the production of utilities which will be transmuted into dollars when they are sold in the

future. Nearly always there are stocks of substances into which dollars have been transmuted awaiting transmutation into dollars at the time of sale, stocks of intermediate utilities into which dollars have been transmuted awaiting transmutation into dollars at the time of sale, stocks of final utilities into which dollars have been transmuted awaiting transmutation into dollars at the time of sale. Dollars into which utilities of any kind produced have been transmuted are not always immediately expended for productive force and forms of matter to which it is applied in the production of utilities for sale in the future. Dollars for utilities produced are not always immediately received from the buyer at the time of their sale.

None the less, every business organization, in order to ascertain whether it is securing profit or sustaining loss, must from time to time balance the dollars which have been transmuted into that which it has utilized in production against the dollars received from the sale of utilities produced. At the expiration of given periods, every business organization takes account in balance sheets and income accounts of the dollars transmuted into that which it continuously utilizes in production, of the dollars transmuted into utilities which it has in stock awaiting transformation or awaiting sale, of the unexpended dollars into which utilities have been transmuted at the time of sale which remain to its credit, of the dollars due to it but which have not been received for utilities sold. Thus it indicates at certain intervals the relation between the dollars to its credit and the dollars to its debit. There is such a relation from day to day although balance sheets and income statements are not made from day to day. There is such a relation from day to day not only with all business organizations but with all individuals who apply effort in the production of concrete utilities or have property in that utilized in their production. It is so also with

all persons who apply their efforts otherwise than in the production of concrete utilities, or do not have property in that which is utilized in their production but who receive dollars from those who have so derived them. Although the balancing of income against outgo is made only at intervals, the existence from day to day of the entire population is adjusted to income and outgo.

As the transmutation of dollars received from the sale of utilities into that utilized in the production of utilities is continuous it follows that the relation at a given time between dollars transmuted into utilities produced and the dollars transmuted into production is in sequence to that relation at the preceding time and that the relation at a subsequent time is in sequence to that at the given time. That is, the prices of to-day are in sequence to those of yesterday and the prices of to-morrow are in sequence to those of to-day.

As final utilities are being used and consumed by those engaged in the various stages and processes which culminate in their production, substance is being produced in volumes sufficient for transformation into intermediate utilities sufficient for transformation into the final utilities that meet the wants of the entire population. Productive force ever sustained by the use and consumption of final utilities produced in the past, is ever being applied in the various stages and processes from which emerge final utilities that sustain productive force applied in the various stages and processes from which final utilities continue to emerge.

XXXII

EXCHANGEABLE DOLLARS

IN the chapter entitled "The Dollar," the dollar has been indicated not only as designating the ratio of exchange of utilities sold and utilities bought, but also as designating from the standpoint of exchange the utilities themselves. Although all production, buying and selling consist in the exchange of utilities for utilities, they are not directly and immediately exchanged. Under the primitive conditions of barter there was such direct and immediate exchange. The evolution of all buying and selling is from barter.

Inasmuch as he who sells utilities may desire to buy utilities of different kinds, from different sellers and, moreover, may desire to buy them at different places, and different times, he must for utilities sold receive a certificate expressed in terms of the unit of exchange and be enabled to expend in different proportions the units of exchange specified on the certificate in buying utilities of different kinds, in different measures from different sellers at different times and places. Such certificates may be designated "exchangeable dollars." They accord immediately utilizable command over utilities.

Exchangeable dollars are utilities in that they are bought when utilities are sold in payment for which such certificates are received and are sold when they are paid for utilities bought. But exchangeable dollars expressed on such certificates are not concrete utilities nor intangible utilities used and consumed by human beings. They are not forms of

matter which are transformed into concrete utilities to be sold, used and consumed, nor are they concrete utilities such as lands and instruments of production utilized in the production of substance and its transformation into such utilities. Inasmuch as dollars in the form of utilities are continuously being transmuted into exchangeable dollars, and exchangeable dollars are continually being transmuted into utilities, the distinction has been left to implication in the discussion of phases of production, buying and selling in the immediately preceding chapters.

When utilities of whatever kind are sold exchangeable dollars are received in the form of certificates which give command over other utilities. When sources of substance or instruments of production are sold exchangeable dollars are received. Such factors in production are sometimes directly exchanged under what are virtually conditions of barter but even then each factor which enters into the exchange is expressed in terms of exchangeable dollars and a balance in the form of certificates is paid by one to another if the factors exchanged have the ratios of exchange of different numbers of dollars. Now and then there is barter or an approximation to barter in buying and selling utilities of other kinds but the cases are negligible and may be disregarded. When substances, intermediate utilities or final utilities are sold exchangeable dollars are received. Payment for the utilization of land and instruments of production is in exchangeable dollars. The payment of wages and salaries for the application of effort in any of the stages and processes of producing concrete utilities is in exchangeable dollars. Payment for personal service is in exchangeable dollars.

Inasmuch as all the stages and processes of concrete production culminate in the production of final concrete utilities, and inasmuch as it is from the sale of final concrete utilities

to final buyers, that are obtained the exchangeable dollars, which reimburse the exchangeable dollars expended in all the stages and processes and which enable the provision of all which is requisite to the increase of production, it follows that the ultimate basis of exchangeable dollars is in final concrete utilities produced and sold. It is from exchangeable dollars obtained from the sale of final concrete utilities to final buyers that are paid exchangeable dollars for land or the utilization of land, for instruments of production or the utilization of instruments of production, for structures or for the utilization of structures, for substances, intermediate utilities, materials consumed in the processes of production and for the transportation of utilities. It is from the sale of final concrete utilities that are ultimately obtained the exchangeable dollars paid to those who provide the utilities of personal service. Although exchangeable dollars received in payment for personal service may be transferred by the recipient to another in payment for personal service they are ultimately expended for final concrete utilities, or for that utilized in the stages and processes of production from which final utilities emerge.

The fact that final concrete utilities produced and sold are ultimately the basis of exchangeable dollars, is substantiated by the evolution of production, buying and selling and the concurrent evolution of the ratios of exchange. The first buying and selling was the exchange of final concrete utilities for final concrete utilities. Hence final concrete utilities were the basis of exchange. Had exchange then been in terms of dollars, final concrete utilities would have been the basis of the exchangeable dollars. As there developed organizations of employer and employees, each engaged in all the stages and processes of producing final concrete utilities of respective kinds, final concrete utilities were

exchanged for final concrete utilities. Had exchange been in terms of dollars final concrete utilities would have been the basis of the exchangeable dollars. Exchangeable dollars received by employers were from the sale of final concrete utilities and exchangeable dollars paid to employees gave command over final concrete utilities.

As there came to be the specialized production of tools and instruments and specialization in the successive stages and processes of production, final concrete utilities emerged from the successive stages and processes. Portions of the exchangeable dollars received from the sale of final concrete utilities to final buyers were paid for intermediate utilities. Portions of the exchangeable dollars received from the sale of intermediate utilities were paid for substance. Portions of the exchangeable dollars received from the sale of final utilities, intermediate utilities and substance were paid for tools and instruments. But inasmuch as all the stages and processes culminated in the production of final concrete utilities, and the exchangeable dollars received from their sale to final buyers paid for all utilized in their production, it still was that final concrete utilities produced and sold were the ultimate basis of the exchangeable dollars. As there came to be payment for land or for the utilization of land, in any stage and process of production, it was ultimately from exchangeable dollars received from the sale of final concrete utilities that payment was made.

When there evolved the use of instruments of production applying power generated by steam and electricity these instruments were used in the successive stages and processes of production from which final concrete utilities emerged. As there evolved the payment for the right to the utilization of accumulated dollars, in any of the successive stages and processes of production, it was ultimately from the sale of the final concrete utilities which emerged from these stages

and processes that were obtained the exchangeable dollars wherewith interest was paid.

The advance from one stage to another has been made possible by the increasing volumes of production from which were obtained a greater number of exchangeable dollars than were expended in the production. It was the families which produced a surplus of final concrete utilities over those requisite for their own wants, who exchanged the surpluses. The surpluses of utilities produced enabled the enlistment of the efforts of employees. As the coördination of effort led to the production of surpluses of utilities over those requisite to meet the wants of employers and employees, the employers could buy tools and implements. It was the surpluses of exchangeable dollars obtained by efficient employers that enabled the construction of the first instruments of production applying power generated by steam and electricity. None the less all the stages and processes of production continue to culminate in the production of final concrete utilities, and the exchangeable dollars received from final buyers enable the continuance and increase of production. Profit may be obtained by business organizations engaged in any stage and process of production, but profit ultimately is derived from the exchangeable dollars received from final buyers in payment for final utilities.

Inasmuch as it is from the exchangeable dollars received from the sale of final concrete utilities that dollars pass to those engaged in all the stages and processes which culminate in their production, and from which all debits incurred by those responsible for the various stages and processes must be met, it follows that the dollars paid as taxes for the support of the governmental organizations are ultimately obtained from the sale of final concrete utilities to final buyers.

Even though exchangeable dollars may be transferred

from one to another as gifts, or in payment of wagers, or placed as stakes in games of chance, they have ultimately been received from the sale of final concrete utilities.

Final concrete utilities directly minister to human wants. Utilities of personal service to the provision of which concrete utilities are requisite directly minister to human wants. The application of human effort underlies and is essential in all stages and processes. All production is by human beings for the benefit of human beings. Therefore, inasmuch as the ultimate basis of the dollar is in final concrete utilities produced and sold the ultimate basis of the dollar is in the relation between human effort and human wants.

XXXIII

PAYMENT IN THE FUTURE

IN the preceding chapters we have assumed that exchangeable dollars paid for utilities bought have been received from the sale of utilities in the past. But payment is not always received for utilities sold until utilities subsequently produced have been sold for the exchangeable dollars wherewith to pay for them.

Stocks of substances, of intermediate utilities, of final utilities, may be held awaiting sale by those responsible for their production. Wholesale and retail dealers always have stocks of final utilities awaiting sale. Reimbursement is not received for the exchangeable dollars expended in their production until they have been sold. Those responsible for their production may or may not be in possession of exchangeable dollars sufficient to pay for continuing production during the intervening period. If they are not and if they are to continue in production exchangeable dollars must be received in advance of the sale of the utilities held in stock.

Exchangeable dollars cannot be so received except from those who possess exchangeable dollars and are willing to transfer the utilization of them. The producers with accumulated stocks may obtain such right to utilization of exchangeable dollars accumulated by others by pledging the accumulated stocks of utilities until they are sold. These utilities will have to be sold for exchangeable dollars sufficient not only to enable the return of those the utilization of

which the producers had acquired, but also to enable them to make payment for the right to the utilization. They will ordinarily give a written promise to pay at a specified time the number of exchangeable dollars the utilization of which has been acquired plus the number agreed upon as payment for the right to the utilization. This is ordinarily designated as borrowing. The written promise to pay is a promissory note. The number of exchangeable dollars borrowed is the principal of the debt, and the number paid for the right to their utilization is interest. The date specified for payment is the date of maturity of the note. He who signs the promissory note is the drawer. He to whom payment is promised is the payee.

Utilities of various kinds, more commonly final concrete utilities sold to final buyers, may be delivered to the buyer in advance of payment without other evidence of the indebtedness than record on the books of the seller. This is selling on open account. It makes possible the acquisition of utilities in advance of the receipt of exchangeable dollars wherewith payment may be made. If employees buy final concrete utilities with exchangeable dollars received for effort applied in the past, effort applied in the past has paid for final utilities produced in the past even though the effort has been applied in the production of utilities which will not be sold until in the future. If they buy final concrete utilities while effort is being applied and pay for them with exchangeable dollars received at the close of the period of application, effort applied during that period has paid for final concrete utilities produced in the past. If they do not pay for utilities received until they have applied effort in the future, they will pay for final concrete utilities produced in the past with exchangeable dollars received for effort applied in the future.

Employers transforming substance into intermediate utili-

ties may obtain substance under promise to pay for it when the intermediate utilities into which it has been transformed are sold. The same may be the case with employers transforming intermediate utilities into final utilities, and with wholesale and retail dealers assembling and storing final concrete utilities for sale. Seldom is the only evidence of such indebtedness the open account. It is usually in the form of a promissory note. If the seller is in possession of exchangeable dollars sufficient to enable continuance in production, he may hold the note until it is paid at maturity. As a reward for waiting it may be agreed that an additional number of exchangeable dollars be paid to him as interest. If he desires to utilize the exchangeable dollars promised in the note before its maturity he may obtain from another the right to such utilization by pledging the note as security. That is, he may borrow the number of exchangeable dollars thus specified less the number paid to the lender for the right to the utilization. When this charge for utilization is made at the time the note is pledged it is designated as discount in contradistinction to interest which is the charge made for the utilization of borrowed dollars at the time they are returned.

Promissory notes may be discounted by individuals who have an accumulation of exchangeable dollars, or by brokers who engage in such transactions, but vastly the greater proportion are discounted by commercial banks with whom such discounting is a principal function.

When exchangeable dollars received as proceeds from the discount of promissory notes are expended in the production of larger volumes of utilities for which exchangeable dollars in greater numbers are received, there is an augmentation in the aggregate of exchangeable dollars. To the extent that promissory notes cannot be paid with the exchangeable dollars received from the sale of utilities for which they were

given there is a diminution in the aggregate of exchangeable dollars.

Payment in part or in entirety for lands may be made from exchangeable dollars received from the sale in the future of utilities produced subsequent to the time of the acquirement of the lands. Such payment may be promised in instalments at the end of specified periods, and a payment of interest may be added to each instalment as reward to the seller for waiting. Separate promissory notes may be given by the buyer to the seller for each instalment of the principal and interest. When the last note has been paid the buyer has property in the land for the purchase of which the notes were given. If the notes are not paid property in the land reverts to the seller. The buyer makes a pledge to this effect in the form of a mortgage which may be foreclosed if there is default in the payment. The mortgage is security for the promissory notes and the property specified is security for the mortgage.

Payment in part or in entirety for instruments of production may be made from exchangeable dollars received from the sale in the future of utilities produced subsequent to the acquirement of the instrument. A business organization may acquire the right to the utilization of such instruments under promise of future payment and acquire property in them when the payments have been made.

A business organization may acquire the right to the utilization of accumulated dollars which it may invest either in lands or in instruments of production under promise to return the accumulated dollars in instalments with interest, or it may promise to pay interest at specified intervals and to return the principal at a specified time in the future. In pledge for payment it may give a mortgage upon that in which the accumulated dollars are invested or it may give a mortgage upon all in which it has property. A business

organization may expend accumulated dollars, the right to the utilization of which it has acquired in part or in entirety for the forms of matter which it utilizes, in materials consumed in the processes of production or in wages and salaries paid to its employees. If it does this it may by promissory notes secured by mortgage pledge certain specified portions of that continuously utilized in which it has property, or it may give a promissory note without other pledge than the right of recourse against anything in which it may have property.

Not only may a business organization acquire the right to the utilization of accumulated dollars in which one person has property; it may acquire the right to the utilization of accumulated dollars in which many persons have property. A mortgage is given pledging repayment of the principal either in instalments with interest, or the payment of interest at specified intervals and the return of the principal in its entirety at a time specified in the future. The many investors receive bonds certifying participation in the mortgage. The bonds are secured by the mortgage and the mortgage is secured by that in which the business organization has property pledged by the mortgage. Bonds may be bought and sold. Those who at any time have property in the bonds issued by a business organization are creditors of that organization. A business organization may acquire the right to the utilization of accumulated dollars by the sale of shares of stock. Those who receive shares of stock in return for accumulated dollars invested by them are not creditors of the organization issuing them, but have a proprietary interest in it. They have the right to participate in profit which may be secured and are obliged to participate in loss which may be sustained.

XXXIV

COMPETITION AND SERVICEABILITY

IN that competition between employers for the effort of employees and competition between employees for employment tend to determine the exchangeable dollars which are paid to employees, the tendency is toward the payment of approximately similar wages under the same circumstances and conditions to employees whose efforts are of the same or approximately similar degrees of efficiency and grades of quality. The wider the area over which competition prevails between employers for employees and between employees for employment, the greater will be the tendency to this end to which the diffusion of information as to the number and whereabouts of employees seeking employment and as to the number of employees needed by employers conduces. If the number of employees of similar characteristics tends to exceed the number whose efforts employers believe they can utilize with profit, the wages of such employees will tend to decrease. The less efficient will be obliged to seek other employment. There may be those inefficient in one vocation who will prove to be of greater efficiency in another, but as a rule if an employee is of less than the required efficiency in any occupation for which specialized skill and training is requisite he is finally obliged to take other employment at lower wages.

In the course of its evolution the human race has tended to increase more rapidly in numbers than it has in mental capacity and ability, and in specialized skill and training. Those whose efforts are of a high quality and degree

of efficiency are proportionately less the higher the efficiency and the quality. Their number is nearly always less than that for which there is demand. The greater their ability and capacity the higher the wages they demand and the higher the wages employers are obliged to pay them. Since employees of higher and higher ability and capacity receive higher and higher wages because their efforts contribute in greater and greater degree to the profit of employers, it follows that their efforts contribute in greater and greater degree to the production of utilities. Therefore, the tendency of competition is toward employees receiving wages in proportion to the degree in which their effort contributes to the production of utilities which meet human wants.

This also applies to every factor utilized in production, to land, to instruments of production, to substances, intermediate utilities, final concrete utilities and final intangible utilities and to accumulated dollars which may be invested in any of these factors which enter into production. The exchangeable dollars which an employer can pay for all of the factors utilized in any stage and process of production are limited by the exchangeable dollars he receives from the sale of utilities produced. The proportions in which these exchangeable dollars received are paid for the respective factors utilized in production are determined by competition.

As all stages and processes of concrete production culminate in the production of final concrete utilities, there is competition not only between employers who compete in respective stages and processes of production, but also in a broader sense between all employers engaged in and all who make investment in the various stages and processes of production to obtain the greatest proportion they can of the exchangeable dollars which are paid for utilities. They are

in competition for the factors utilizable in production to the extent that they believe their utilization will contribute to this attainment.

Sources of substance of particular kinds such as the minerals and the woods cannot be utilized for the production of substances of other kinds. But there is competition between producers of the woods and the metals for forests and mines, for the acquisition of rights to timber and beds of minerals. Some agricultural lands are better adapted to the growing of crops of certain kinds than of other kinds but nearly all lands under rotation yield crops of different kinds and lands can often be made available for the production of crops for which they have not previously been utilized. Many kinds of instruments of production can be utilized only in the specialized application for which they were designed, but productive force can be applied in the provision of new instruments of many kinds. Lands in towns and cities available as sites for manufacturing plants can be utilized by business organizations engaged in one or another stage and process of production of utilities of respective kinds. Lands in towns and cities available as sites for the structures of business organizations engaged in selling utilities at wholesale or at retail can be utilized by different organizations for the sale of utilities of different kinds. The utilization of lands is shifted from one purpose to another. Land once utilized for grazing is used for the growing of crops. Forests are transformed into farms. As centers of population encroach upon the farms farm lands become sites for factories or are cut up into town lots. As the business of a large city encroaches upon the residential section residences become boarding houses and then are replaced by retail stores, office buildings, hotels and theaters.

Because employers endeavor to secure profit, they seek not only to pay as little as they can for that utilized in pro-

duction in accordance with the degree to which its utilization contributes to profit, but also to obtain the greatest number of exchangeable dollars they can for the utilities produced. The greater the volume of utilities of a given kind produced in relation to the productive force applied, the greater as a rule is the profit of employers. As the volume thus increases it may be sold at lower prices per unit, but the total of exchangeable dollars thus received may yield a profit. Competition tends to compel the sale of utilities of any kind at the lowest prices which will yield profit to the most efficient producers. In order that they may produce the greatest volume of utilities from the substances in the forms in which they are utilized, competition compels employers to utilize all of the constituent parts of substance. The development of the so-called by-products fostered by the advance of science tends to such thoroughness of utilization, to the elimination of waste.

Substances are transformed into utilities of different grades of the same kind, by-products are transformed into utilities of different grades of the same kind. As employers are impelled to obtain the greatest number of exchangeable dollars for utilities produced, they seek to produce utilities of different kinds and grades which can be sold for the greatest total of exchangeable dollars. To this end they sell utilities of the lower kinds and grades at prices which extend their sale. At the lower prices even those who receive exchangeable dollars in small proportions are enabled to extend their purchases.

PART IV

THE SIGNIFICANCE OF CERTAIN
GENERAL FACTORS

XXXV

HUMAN NATURE

SINCE application of effort emanating from the bodies and brains of human beings is requisite in every stage and process of production, buying and selling, and since the ultimate purpose of all production, buying and selling is to minister to the wants of human beings, it is inevitable that that which constitutes personality, that which is designated as human nature, is profoundly influenced by participation in these processes. Human nature reacts upon production, buying and selling: production, buying and selling react upon human nature.

Into that which we know as human nature enters not only physical activity and mental activity but the manifestation of the emotions. Virtually every human relation is affected by emotions which range from hatred, jealousy and envy at one extreme to the pleasure caused by conferring a benefit upon another.

Every living organism must obtain that which is necessary to the continuance of its existence. If it does not succeed in doing so it dies. As in the course of evolution plants and animals appeared upon the earth, plants contended with plants for nourishment from soil and air and water and so also did animals contend with plants and with other animals. Animals of different species preyed upon plants and upon animals of other species. The existence of the species which survived in the struggle was predacious. In the rocks have been found fossils of plants and of animals of species which throughout the ages became extinct.

As man evolved he, like the other animals, was obliged to obtain that which maintained his existence. He preyed upon plants and animals taking what he wanted where he found it and as he could secure it. As he developed the use of tools and instruments his wants were the more readily supplied. When families and tribes progressed to the making of more things of a kind than were wanted for their own use the exchange of the results of effort for mutual benefit began. But man inherited the predatory instinct and the continuing struggle for existence enhanced this predatory instinct. It is recorded that isolated tribes in out-of-the-way regions have had no word in their language which means to lie, to steal, or to murder but nearly everywhere as tribe came into contact with tribe there was a fight for supremacy. The vanquished were enslaved and made to work for the conqueror. As conquerors extended their sway tribes coalesced into races and races into nations. Intervals of peace have been succeeded by intervals of war. In this twentieth century when the gospel of peace had attained its widest sway the world has been devastated by the greatest war of history.

In the development of buying and selling between peoples of different races and people of the same race the motive of virtually universal application and recognition was that of gain. There was little or no recognition of the fact that he who sold was of benefit to the buyer because he contributed toward meeting his wants. Employers and employees have often engaged in recrimination which loses sight of the fact that the services of the employer were as necessary to the benefit of the employee as were the services of the employee to the employer. The primal instinct which led man first and foremost to seek his own advantage has permeated industry and commerce throughout their development.

When men came to perceive their evil, lying and stealing

were proscribed. But the primal instinct which prompted resort to these vices has not even as yet been annihilated. As the processes of production, buying and selling have become more complex and of more intricate ramification, these vices have found more subtle manifestations which custom and law have placed under the ban as their effects have become apparent. But under all the contention has been the primary conception that those who take part in industry and commerce are animated solely by the desire for gain. That they are animated by the desire for gain is true, but it is equally true that those who engage in the processes of production, buying and selling contribute toward meeting the wants of the human race. Recognition of this fact leads to the endeavor so to adjust the processes of production, buying and selling that they may contribute in the greatest attainable degree to the benefit of the human race. This involves the adjustment which will contribute in the greatest attainable degree to the benefit of those who are engaged in whatever capacity in the various stages and processes of producing, buying and selling concrete utilities and in the processes of producing the intangible utilities.

First and foremost we must recognize the fact that the physical and mental qualities of different persons vary within a wide range. There are varying degrees of capacity and ability for different kinds of activity and there are varying grades of the moral quality which give to activity its tone. In varying degrees different persons are fitted for different tasks, in varying degrees different persons are qualified to apply their efforts in ways which contribute toward meeting the wants of others. There is variance in the wants of different persons which are met by the efforts or the results of efforts of others.

The desideratum is that each person have the opportunity to apply his efforts to the full extent of which he is

capable in meeting the wants of others, and that he receive payment neither greater nor less than that for which his efforts or the results of his efforts could be obtained. Broadly and generally this end is served by competition which tends toward employees whose efforts are of approximately the same degree of efficiency and grade of quality receiving approximately the same wages, to those who have property in that which is utilized in production receiving approximately the same payment for the utilization of factors of approximately the same grades of serviceability, to business organizations of similar degrees of efficiency and under similar conditions of risk receiving approximately the same profit.

But competition tends slowly to this end. Its working is everlastingly impaired and retarded by greed, ignorance and misunderstanding: competition when unrestrained has led to many evils. The primal instincts manifested in man's inhumanity to man have led employers to drive their employees to the point of exhaustion, have led employees to restrict and skimp the work they do instead of doing as much as they reasonably can as well as they can. Unrestrained competition between employers has led to premature exhaustion of lands, forests and mines, to the production at times of utilities far in excess of the volumes for which there was demand and at other times to their production in volumes far below the demand, to the production at times of instruments of production in number and capacity far in excess of the needs of production and at other times to lack of their adequate provision.

Employers have sought to restrain competition by unduly restricting the volumes of their product in order to obtain higher prices and greater profit than could be secured under fair competition. Employees have sought to obtain higher wages than could be secured under fair competition and to

restrict their work in order that a greater number of employees obtain wages in the same occupation. All such endeavors militate against the general welfare because the entire population is compelled to pay more for the utilities of individual use and consumption than it ought to pay.

Fair competition is a term seemingly difficult of definition. Its definition must be based upon the underlying fact that all production, buying and selling should conduce to the welfare of the population. Therefore that competition is fair which leads to the more efficient individuals or the more efficient business organizations obtaining greater reward than the less efficient because the greater reward is payment for the greater contribution toward meeting the wants of the population. Conversely, that competition is unfair which leads to the attainment of greater reward for factors utilized in production or utilities produced than the prices at which they could be obtained under conditions which promote their increasing production to meet increasing wants. Fair competition does not mean that greater reward should be obtained at the expense of the premature exhaustion of any factors utilized in production, whether source of substance, instrument of production, or the worker himself. Fair competition means that those who apply effort in production and those who have property in that which is utilized in production should have the opportunity to do the best they can under conditions which conduce not to the impairment of the general welfare but to its promotion.

The attainment of fair competition requires the widest information as to the interrelations between the supply of and demand for all which is utilized in production and all which is produced. The collection and diffusion of such information by governmental organizations and by business organizations is rapidly extending.

There cannot be healthful, wholesome existence without exercise of the bodily and mental faculties, without the desire to do, the satisfaction of doing, the contemplation of the thing sought to be achieved and the endeavor to adjust bodily and mental faculties to its achievement. The playing of games so enlists physical capacity and mental capacity. The attainment of the highest score gives gratification, but there is a zest in the playing. Satisfaction comes from the exercise of the physical and mental qualities, even to those of the lower scores. If the game has been fair, if it has been conducted under the rules of fair competition, it is not good sportsmanship for the losers to lose their zest. Those who apply effort in the endeavor to extend the range of knowledge, the reach of science, who strive to design, invent and discover, have incentive similar in kind but of a higher quality than that which gives zest to the playing of a game. They experience the striving, the satisfaction of the endeavor, and the uncertainty of the result. Those who succeed have the gratification of achievement which is for the benefit of mankind. It is likewise with the artist, the writer, the composer.

The application of effort in the various stages and processes of producing, buying and selling concrete utilities exercises the mental and physical faculties. Those of the ability and capacity which enables them to take part in providing, directing and coördinating that which is utilized in production and in the endeavor so to forecast the interrelations between supply and demand that profit can be obtained have a stimulus to the exercise of physical and mental qualities far surpassing that provided by any game.

Those of specialized skill and training who apply their efforts as employees are without the cares which attach to those responsible for the provision of all which is utilized

and the sale of that which is produced. If they have the spirit of craftsmanship they will derive satisfaction from the exercise of their physical and mental capacities and gratification from the excellence of their workmanship realizing that they are ministering to the satisfaction of those who come into possession of that which they have helped to produce. This applies to those engaged in the production of concrete utilities and to those engaged in the production of intangible utilities.

Every person applying his effort in any stage and process of production of concrete utilities contributes toward meeting the wants of mankind and the effort applied by others contributes toward meeting his wants. It is so with those who toil in the fields, forests and mines, in the mills and factories. They exercise their physical faculties and in greater or less degree their mental faculties. The unending repetition of the same tasks may be monotonous, but if it could always be inspired by the thought that it is all for the benefit of mankind, they would find satisfaction in their work. If there were the well-founded belief that their activity is applied under fair competition, that each was receiving the most that was due to him for the best he could do, envy, jealousy, passion and prejudice would wane in the recognition that each was rendering service to his fellow men as best he could, and receiving the services of others in the full measure to which he was entitled. Even the crudest, simplest, most monotonous task brings the worker into contact with that with which he works. Every task is opportunity for observation and reflection on the part of those who can observe and reflect. Every worker has the opportunity to obtain the wider knowledge and the broader grasp of all which concerns the work he is doing. For those who have not the capacity for so availing of these

opportunities the modern industrial system provides means of occupation and making a living which they would not otherwise have.

Nearly every one who engages in activity of any kind is at times called upon to suffer stress, strain and hardship. When it is inevitable, he ought to bear it with the satisfaction that the soldier on the battlefield feels in doing his duty. As it is the aim of civilization to diminish the strife of warfare, so also is it the aim of civilization to diminish industrial strife. As there must be organization in the military structure, so also must there be organization in the industrial and commercial structure. Those who have the capacity and ability to direct and coördinate the processes of production, buying and selling to the greatest service of their fellow men ought to have the opportunity to exercise that capacity and ability. So also those whose efforts can be applied to the greater service of their fellow men by working under their direction and coördination should so apply their efforts with the contentment that comes from doing the best which can be done. There ought to be full recognition not only of what men get for what they do but of what they do for what they get. There is a distinction between contentment and satisfaction, between discontent and dissatisfaction. A man may be contented in the conditions of his existence while he strives continually to improve those conditions. Contentment conduces to the joy of living, the desire to better the conditions of living is an incentive to progress.

Because of the vast increase in the production of concrete utilities and intangible utilities in proportion to the population virtually every capable person who desires to lead a useful and wholesome life, even though he receives only a small income, is more nearly on an equality with those of great incomes than is generally recognized. Wholesome

food, necessary clothing and adequate shelter, which serve the essential purpose quite as well as elaborate viands, elaborate raiment and elaborate residence are within his reach. Newspapers and magazines diffuse to the poor as well as to the rich information of that which is noteworthy in every field of activity in the world, of the achievements in science, literature and the arts. Books are at the hand of every one in the public library in nearly every village. Moving pictures, available for nearly every person, become in increasing degree an agency for placing before all the world vivid representations of all that the world is doing. He who has the capacity and the desire, whether in the city or village, on the farm, in the mining or the lumber camp, may drink at the fountains of knowledge, science and art.

The world is open to him who has the eyes to see and the brain which seeks to understand. The beauty of field and forest, stream and sky is for any one who sees them. Prince and statesman convoyed by a retinue see the same streets and buildings as those who ride on an omnibus. Those in the galleries see the same play as those in the orchestra, and those on the bleachers the same contest at baseball or football as those in the grandstand. A game of checkers or of cards has the same points and gives the same zest whether played in the kitchen, the garage, the club or the drawing room. There is the same exhilaration in catching fish or bagging game whether by a workman in overalls or a millionaire in tweeds. The same desire for human intercourse animates those who attend social gatherings whether in the social center or the decorated ball room.

Rest and recreation are essential to wholesome living. They are essential to the efficient application of effort in any field of activity but the degree of wholesomeness depends upon the manner in which hours of rest and recreation are expended. If they are devoted to physical indul-

gence and mental stimulus of injurious effect they would better be spent at that work which contributes toward meeting the wants of human kind. Recreation is a stimulus when it is recreation; as a pursuit it palls.

XXXVI

THE SEQUENCE OF CAUSE AND EFFECT

WHEN the senses of primitive man brought perception of cause and effect to his primitive mind apparently each separate effect had a separate cause. As there are even now primitive tribes in out-of-the-way regions whose arithmetic is limited by the perception that one thing cannot be another thing and who hence can count to two and no more, so also was the primitive mind unable to trace the ramifications of effect due to a single cause or the ramifications of causes in producing a single effect. The evolution of the human mind has been characterized by an increasing ability to trace the interwoven relations of cause and effect. Virtually all scientific research in whatever field has been and is now devoted to this end. In no field of science is there greater need for a thorough understanding of the interrelations of cause and effect than in that of economics.

As primitive man did not trace the apparently separate effect beyond the apparently separate cause, so also when the effect was apparent and the cause was not he came to ascribe a separate effect which he saw to a separate cause which was unseen. In further evolution he came to ascribe apparent effects of the same kind to one unseen cause. His imagination filled the unknown with thousands of gods and demons each conceived as exercising control over separate phases of existence. As he groped to extend his understanding he was prone to conjure up conceptions of a multitude of origins for the myriads of phenomena.

As the human mind has attained a clearer conception of

the environment in which human existence is maintained, and of the forces which act and react in that environment, of human existence itself and of the forces which act and react throughout human existence, of the relation between human existence and the totality of existence of which it is a part, it has perceived that all existence, instead of being dominated by a multiplicity of separate causes, flows in a sequence of cause and effect. Man has come to realize that the innumerable manifestations of cause and innumerable manifestations of effect are manifestations of the infinite and eternal energy which pervades the universe.

The thousands of gods were displaced by the conception of one omnipotent deity and this conception merges into that of the infinite and eternal energy. In the fields of physics and chemistry the belief in inherent separate powers acting independently has given way to the conception of underlying forces which act and react. The belief that all of the species of plants and animals were created separately by divine fiat has given way to the conception that all forms of animate existence have developed from simpler forms through the action and reaction of underlying force, and that the origin of the simpler forms was due to the action and reaction of underlying force.

The teaching of the different branches of science, instead of dealing with phases of existence as though they were due to a multiplicity of separate manifestations, has come more and more to demonstrate the interworking of the manifestations. In the course of their evolution the manifestations of existence become more complex but as their evolution becomes more clearly understood the complex resolves into the simple.

For example, the method of medical research has been changed by the discovery that the general cause of infectious diseases is the action and omnipresence of microörganisms.

For example, under the old time teaching of mathematics each step was placed before the pupil as though it was a definite division of the science. The modern teacher so guides the minds of his pupils that they perceive the most elaborate calculations from simple arithmetic throughout higher algebra to be developments of addition and subtraction. When the mind of the pupil has so been guided he comes to understand not only the meaning of the different terms which designate developing processes, but also the reason for the different terms. Instead of being bewildered at the beginning by a series of definitions which have to be learned arbitrarily, his mind is made ready for the definitions by the development of the processes to which the definitions give rise.

Students of economics have likewise been perplexed by definitions placed before them in advance of the development of the phenomena to which the definitions apply. There has been a striking dissimilarity in definitions formulated by different teachers and in different works on economics. In the preceding pages has been sought to present the interworking of economic activity in terms of the fundamental factors involved.

The desire for knowledge led to the devotion of minds and lives to its extension and diffusion. The prompting to combat disease led to the devotion of effort to that ministration which conduces to wholesome living and longevity. The growing appreciation of symmetry, beauty and harmony led to the devotion of effort to the furtherance of art. The desire for information as to the course of events led to the devotion of effort to obtaining the news which is presented and commented upon in newspapers and magazines. "News" is that which is new. It has also been pointed out that it comes from the North, East, West and South. The need for the regulation of the relations between men led

to the development of laws and the application of effort in the adjustment of human relations in accordance with the laws. This need for the adjustment and regulation of the relations between men led to the evolution of the governmental organizations and to the application of effort in their service.

Production, buying and selling developed and extended as the wants of all persons came the better to be served by that specialization under which the coördinated efforts of respective numbers of persons produce utilities of respective kinds in volumes requisite to meet the needs of vast numbers. With the advance of discovery, design and invention utilities have been produced in increasing variety to meet an increasing variety of wants, substances in increasing variety have come to be utilized in an increasing variety of ways, instruments of production have become more specialized and more efficient.

There must be designation of the various factors utilized and of the various processes by means of which production, buying and selling are effected. In the desire to present in the simplest way the interworking of these factors and processes no more than a limited use has been made in the preceding pages of terms which are generally employed in their designation, and there are similar designations which have not been used in these pages. It is desirable to consider these designations of common use and their significance. In this consideration the new English dictionary generally known as the Oxford Dictionary is a source of enlightenment.

XXXVII

THE DERIVATION OF TERMS USED IN BUSINESS

THERE must be distinction between the person or persons who have the right to use and dispose of any utility and those who have not that right. The right to use and disposition is the essence of the right to property. The word property has the same origin as the word proper. It signifies that of which a person properly has the right to use and dispose. So also the words proprietor, proprietary and proprietorship have the same origin as propriety. They signify that of which a person in propriety may make use and disposition.

Employment connotes direction to a particular purpose. An employee is one whose efforts are directed to a particular purpose. The employer is one who directs the efforts of employees to a particular purpose.

Wage is the payment made by an employer to an employee whose efforts he directs to a particular purpose. The employee has a measure of responsibility for the manner in which his efforts are applied but the ultimate responsibility is with the employer.

The word salary was derived from salt. Salary originally was the allowance made to Roman soldiers to enable them to buy salt. Then it came to designate the allowance made to them in payment for their services. As the tenure of Roman soldiers was continuous, salary came to have the significance of a fixed and continuous payment in distinction

from the payment of wages which may be for shorter or longer periods.

Fee connotes a separate payment for separate services. It is thus different from wages which are payment for effort applied throughout the period for which they are paid, and in still greater distinction to salary, which is fixed payment for continuous service.

Wage has come to indicate as a rule the payment for manual or mechanical work, salary the payment for continuous effort which as a rule requires a higher grade of mentality than that which is manual. Salary applies especially to the payment received by those who direct and co-ordinate the efforts of others.

The present virtually universal application of the terms wage and wages to designate the payment by an employer to an employee exemplifies the modifying influence of the advancing industrial régime, not only upon the customs but also upon the use of the language of the militaristic régime which it has tended to succeed. Originally wage had the same significance as gage, that of a pledge retained or lost through activity. When opposing monarchs waged war, they pledged the lives and possessions of themselves and their subjects. The pledge passed to the victor. Thus wage connotes uncertainty as to result. Hence wager is a gambling term. The stake placed on a horse race, upon a game of chance, upon any outcome affected by causes too intricate to be forecast, is a wager. This element of uncertainty still applies in a measure to the reimbursement to the employer of the wage paid by him to an employee. The employer pledges the payment: the employee is virtually certain of obtaining his wage. The return received by the employer from the sale of that to the production of which the effort for which wage has been paid contributes, is virtually always attended with an element of uncertainty.

The term bond originally had the same connotation as the bondage in which were placed the vanquished in war. They were bound to the performance of the tasks imposed upon them by the victor. As the industrial régime advanced he who pledged payment bound himself to make payment. When he pledged material possessions in which he had property he gave a mortgage. This term also is derived from the militaristic régime. "Mort" means death, "gage" a pledge. A mortgage is a pledge to death. If he who has pledged property cannot make payment the property becomes dead to him; if he makes payment the pledge becomes dead to the holder.

As the industrial régime advanced, not only did wage, bond and mortgage come to indicate relations entered into through voluntary agreement, but such relations evolved other terms. When property in material possessions is transferred it often is desirable that a specific description of the property be transferred from the seller to the buyer, who retains it as a certificate of ownership. When that in which property has been transferred consists of land and buildings, what is known as real estate, the certificate of ownership is designated as a deed. This term is a derivative of "do," correlated with the past tense "did." The transfer is that which has been done. The buyer acquires the property and the deed.

Those who have property in that which is susceptible of continuous utilization may dispose of the right to the utilization. The payment for the right to the utilization is usually designated as rent, which has the same derivation as render. Rent is the payment rendered for the right to utilize.

Writers upon economics of past generations were prone to use the word stock to designate the possessions utilized in production, buying and selling. The term was not ap-

plied to land but in the main to substances and the utilities into which they were transformed for sale. It also included the tools and implements utilized in that by-gone day. The word stock is a modification of "stalk." It connotes the original from which something is derived. The trunk of a tree, the main stem of a plant is the "stalk." Thus the word "stock" is applied to the line of descent not only of a breed of animals but also of a human family or human race. As used by early economists, it indicated the principal from which return is derived. The word is still used in this sense to designate quantities of concrete utilities which are held awaiting transformation or awaiting sale. In general the use of the term has merged into that of capital which includes all that a business organization utilizes in production. Capital is the source from which production flows. As there is the fruition of fruit-bearing trees when the fruit is gathered, so also is there the fruition of productive force as utilities emerge from the processes of production. Capital connotes the head, and thus implies that which is utilized by the brain, an implication entirely appropriate because the continuance and the progress of industry and commerce is due to the mental effort of those who direct their processes.

All production, buying and selling is designated as business. This word is a correlative of "busy" which means to be actively engaged, to be doing something which engrosses attention. Business means action which occupies time and demands attention and the exertion of effort.

Production, buying and selling give rise to debits and to credits. Debit has the connotation of debt. When a debt is paid a debit is extinguished. Credit has the connotation of confidence. For long it was mainly considered and is still largely considered to be the trust reposed by a seller in a buyer who does not make immediate payment. In a broader sense debit and credit have come to signify the payments

made and the payments received in the course of buying and selling. That in which there is property for which payment has been made is to the credit of the possessor. That which he has paid is to his debit and to the credit of the seller. In the continuance of production, buying and selling there is the continual transmutation of debits into credits and of credits into debits.

Production, buying and selling have evolved the terms "price" and "value." Price is the payment obtained at the time of sale for that which is sold. Value is that which could be obtained for that in which there is property in case of sale. The value of lands and instruments of production continuously utilized is determined by the surplus received from the sale of utilities produced over the debits incurred in their production.

This is "profit." The word has the same derivation as proficient. It would not seem improper to extend the derivation to signify that profit is "pro," that is "for," and "fit," that is "for the fit."

Not only may payment be made for the right to utilize that which is susceptible of continuous utilization but payment may be made for the right to the utilization of that by means of which payment is made for all which is utilized in production, buying and selling. This is interest. Interest is ordinarily considered as payment for the use of money. In past centuries the taking of interest was proscribed because it was obtained as a rule from the unfortunate in payment for loans made to them in a time of adversity. Thus interest was considered to be a toll levied by the fortunate upon the unfortunate. Interest, then designated as usury,—that paid for the use of money,—was placed under the ban of the church and of the law. As industry and commerce developed men perceived that the utilization of that for which interest was paid might result

in an increase in the production of the things which met human wants, from the sale of which there was justifiably received more than was expended in the production. It was recognized that he who loaned might have himself utilized that which he loaned in the production for which greater return was received, and therefore was justified in claiming from the borrower the repayment not only of what had been loaned to him, but also of a portion of the surplus secured by utilizing that which he had borrowed. That is, the borrower was justified in making up to the lender a part of the difference which he could have secured had he utilized himself that which he loaned. Hence the term usury tended to be displaced by the term interest which originally signified "making up the difference." By natural modification it came to signify the right to participate in the results obtained from the utilization of that which is loaned.

The ultimate root of the word "speculation" is in the Latin "specere" which means to see. Its immediate root is in the Latin "specula" the watch tower of the Romans, from which could be had a view far and wide. Originally the word speculate signified "to view as from a watch tower or observatory," "to take a discriminating view of." Thus speculation signified "the act of seeing, looking," "intelligent contemplation or observation" involving "analysis and meditation." By easy gradation came the meaning "to look into the future, to endeavor to forecast the progress of events." Then the dictionaries jump to the definition of speculation in the commercial sense as "the investment of money at the risk of loss on the chance of unusual gain; specifically buying and selling, not in the ordinary course of commerce, but to hold in the expectation of selling at a profit upon a change of values or market rates."

Of all the terms to which production, buying and selling have given rise that which has taken the greatest part in all

industry and commerce is money. The original significance of what constituted money and the original function of money are easily understood. But money has so changed with the evolution of industry and commerce that there is no universal agreement at this time as to what constitutes money or what is its effect upon production, buying and selling. The evolution of money has given rise to the "check" drawn upon a bank. Its significance in finance developed from the same term which designates one of the squares on a board used for playing chess or checkers. It became the practice of early ministers of finance to have placed before them on a table divided into large squares similar to those of a chess or checker board the items of receipt from respective sources and the items of expenditure for respective purposes, each on a separate square. Thus was obtained a classification of the budget. Hence the designation of a minister of finance as Chancellor of the Exchequer. As receipts are devoted to payment there is a check upon the application for other payment of the receipts so expended. Further payment is stopped, just as in chess the movement of the king is stopped when he is under check. When a check drawn against credits in a bank is placed to the debit of the drawer he is checked, stopped from other disposition of the amount of the check.

Before entering upon the discussion of money it is desirable to give especial consideration to the significance of capital and value at this period of industrial and commercial development.

XXXVIII

CAPITAL

INCOME accords command over utilities and is expressed in dollars. The term has a varying significance. In the case of a business organization it may apply to the surplus of dollars received over dollars expended. This is profit, strictly designated as net income. Payment received for the right to utilization of lands, of instruments of production, of structures and of accumulated credits by those who have property in them but have parted with the right to their utilization is designated as income. Wages, salaries and the total of fees received in payment for personal service are designated as income, even though they may not exceed the expenditures incurred in the application of the effort for which payment was received.

Capital in broad designation is that which produces an income; or more accurately the utilization of which produces an income. In this sense the body and brain of an employee are capital because from the sale of the effort emanating therefrom is obtained income in the form of wages. In this sense the voice of the singer, the brain of a lawyer, the skill of the surgeon, the ability of the writer, composer, artist and actor are capital. So long as such an individual so maintains his body and brain that the effort emanating therefrom or the results of his efforts bring him an undiminishing income his capital is unimpaired.

Capital in its ordinary significance designates that which is continually utilized in production. Land constitutes capital and instruments of production constitute capital. More-

over, as a business organization engaged in production must have credits wherefrom it can incur the debits requisite for meeting the continuing expenses of production the amount of such credits in its possession when it enters upon business must not be impaired if its business is not to be impaired. These credits constitute part of its capital. The investment in land, in instruments of production and structures continuously utilized is designated as fixed capital. The credits continuously expended for wages, substance, materials, taxes and insurance are designated as working capital. All which constitutes the fixed capital and working capital of a business organization is properly designated as business capital.

A business organization carries on its books expressed in dollars, the amount of its investment in that which it continuously utilizes in production. It also carries on its books, expressed in dollars, the amount of its working capital. Payment for the utilization of fixed capital is commonly designated as return upon the capital invested. It is expressed in the ratio which the dollars so received bear to the dollars invested as capital.

The business organizations which continue to receive credits exceeding the debits incurred in production may increase their investments in fixed capital, have an increased working capital and thus be enabled to produce utilities in larger volumes. Those which receive credits in smaller proportion in relation to the debits incurred may increase their capital in lesser degree. If a business organization does not from the sale of utilities produced obtain credits which reimburse it for the debits incurred in the immediate processes of production its working capital is impaired. If it does not receive from the sale of utilities produced sufficient not only to pay the immediate expenses of production but also to yield return upon the investment

in land and instruments of production its fixed capital is impaired. If the relation of credits received to debits incurred continues to decrease the organization will finally be obliged to discontinue production and to sell that which constitutes its fixed capital for what can be obtained for it. The efficient business organizations, those which most efficiently select and most efficiently utilize the most efficient factors in production, and who exercise the best judgment in forecasting the demands for the utilities they produce, are enabled to increase their capital and expand their production.

An organization may borrow the credits with which it acquires land and instruments of production. If it is successful in business it may from the sale of utilities produced obtain the credits which enable it not only to pay for the continuing expenses of production, and to pay interest for the utilization of the credits borrowed, but also in the course of time to extinguish its indebtedness and thus to acquire property in that in which the borrowed credits were invested. Then the return upon the capital is the property of those who participate in the ownership of the organization.

Whether the credits invested in that continually utilized by a business organization be the property of those who participate in its proprietorship or whether they be the property of others to whom interest is paid for the right to their utilization, there must be the continuing return upon capital if the organization is to continue in business. Many organizations have property in part of the capital which they utilize and pay interest for part of the capital which they utilize. As the period for which the credits have been borrowed expires, the loan may be renewed. From time to time additional credits may be borrowed. Bonds issued by an incorporated organization secured by mortgage upon that in which it has property, are evidences

of the indebtedness for credits so borrowed. Stock issued by an incorporated organization is evidence of the proprietary interest in that in which it has property.

Bonds may be sold and bought, shares of stock may be sold and bought. As an incorporated organization continues in production there may be changes in the holders of bonds who receive interest as creditors of the organization and changes in the stockholders who participate in the profit received or the loss sustained by it. In increasing degree the processes of production, buying and selling have come to be conducted by corporations which, if they are successful, continue in production indefinitely, notwithstanding that there may be changes in the bondholders, in the stockholders, in the personnel of the boards of directors, in the executive officers and throughout the entire range of employees.

Those who do not expend for final utilities all the credits they receive from whatever source may invest in the bonds or in the stock of corporations. They thus participate in the right to obtain return upon capital invested if the operations of the corporation are successful, and are obliged to participate in the loss in case its operations are unsuccessful.

XXXIX

VALUE

THE word value has many different meanings and many different shades of meaning. Throughout the entire range the underlying significance is that of relation from the standpoint of human appeal. In music value means the relation of the tone lengths; in art, the relation between the lights and shades in different sections of a picture. In mathematics, it is the precise number or amount represented by a figure. In general usage value designates the relation of that which has value to the purpose it serves.

In industry and commerce value indicates the relation between the various factors applied in production and various kinds of utilities produced which finds expression in buying and selling. When a utility is sold the price obtained for it is its value. When a utility is held in possession awaiting sale, the price which could be obtained for it, if it were sold, is its value.

If the value of a utility were considered to be the estimate of an individual as to what he would be willing to pay for it or what he would be willing to sell it for, it might have as many values as there were individual estimates. In the absence of any other criterion no one of these estimates could have general acceptance. The value of a utility, therefore, is an estimate in which there is concurrence. The test of concurrence is what the buyer will pay and the seller will accept for it. That which will be received and paid for a utility at a given time and place may be different from that which will be received and paid for it at

another time and place. Therefore, the value of a specified utility can never be definitely fixed once and for all. There can be no designation of its value except under limitations as to time and place.

The value of a final utility does not depend upon the extent to which it meets the wants of an individual. Of things exactly alike, owned respectively by different persons, each may have a different degree of serviceability to its owner notwithstanding that for each may have been paid the same price, or that the same price may be obtained for either. It is what can be obtained for a utility which gives it value. The degree of its value depends upon the price which can be obtained for it when it is sold.

The value of a utility adapted for continuous utilization in production in case it is sold in its entirety is determined by the price obtained for it. Its value in utilization depends upon the return obtained from the sale of the utilities produced by means of its utilization. A business organization does not continuously utilize one factor in production alone. In the processes of production it utilizes lands, structures, instruments of production and human effort; it also utilizes substances in one form or another, including materials consumed in the processes of production. The organization is a unit. Its activities embrace the utilization of the effort applied in production and the utilization of all by means of which and to which that effort is applied.

The value of utilities continuously utilized as capital in the processes of production is determined by the return derived by means of their utilization upon the capital invested. The value of the bonds of a business organization depends upon the rate of interest obtained upon the capital so invested and the belief as to the soundness of the security pledged for the payment of the bonds. The value of the stock of a business organization depends upon the surplus

which it obtains over the debits incurred in meeting the continuing expenses; in the repair, renewal and replacement of that which it continuously utilizes in production; in the payment of interest for borrowed credits and in provision for repayment of the borrowed credits. That is, the value of stock depends upon net earnings, upon profit, whether paid to the stockholders as dividends or retained as surplus.

When a business organization has earned dividends for a period and gives prospects of continuing to earn them in the future the price that its shares of stock will bring, and therefore their value, is determined in large measure by the rate of dividend. Dividends, however, depend upon net earnings and these may be utilized to build up a surplus before dividends are paid. The lower the ratio of net earnings to the total number of shares, the lower is the value of a share. The higher the ratio of net earnings the greater is the value of a share. Those who believe that the prospects are good for a continuance of or an increase in the net earnings will pay a higher price than those who do not so believe. The value of the shares at a given time is the price which can be obtained for them at that time.

It is not the prices which could be obtained by a business organization for the utilities which it continuously utilizes in production—its so-called physical assets—if they were sold separately, which determine the value of that organization. Its value is determined by the efficiency of the organization as a whole. The greater its efficiency, the larger will be the volume of utilities produced not only in relation to the physical assets but in relation to the mental and physical effort applied in their utilization. This means that, other things equal, the greater the degree in which its activities contribute toward meeting the wants of a greater number of persons the larger will be its profit. Therefore, the greatest benefit, not only to those who have

property in the organization, but to all those who buy the utilities produced by it, will not be obtained by restricting the return received by it to a prescribed ratio to a predetermined and fixed so-called value of the physical assets. This would offer no inducement to the increased efficiency by means of which a greater volume of utilities could be produced and a greater ratio of return secured. Thus to restrict production is to impair the most effective and the most beneficial application of productive force.

Because the value of a utility is determined by what can be obtained for it if it is sold, its value does not consist in what it has cost. When the supply of substance, intermediate utilities or final utilities increases in relation to the demand, they must sometimes be sold for less than they cost if they are to be sold at all. Instruments of production in the form of powerful engines and machinery usually made upon definite order, with specification of the price, are seldom sold by the producer at less than the cost of production. Instruments of production in the forms of minor tools and implements may at times be produced in large volumes in relation to the demand and thus may have to be sold at a loss especially if more effective instruments have been devised which serve the same purpose. Land may have to be sold at a loss if its capacity for utilization and production becomes impaired. The shares of stock of a business organization may be sold for less than has been paid for them if the earning capacity of the organization becomes impaired. When the owner of utilities of any kind has incurred indebtedness which presses for payment, he may be obliged to dispose of these utilities at forced sale for less than would be received if he could await their disposition at a time when the interrelations between supply and demand would enable him to obtain a higher price.

PART V

THE SIGNIFICANCE OF MONEY
AND BANKING

XL

MONEY

IN the preceding pages dollars have been considered as units of exchange constituted in reality of utilities sold and utilities bought, exchangeable dollars as symbols of utilities sold accepted in payment for utilities bought. At the beginning of buying and selling utilities were exchanged directly for other utilities without any intermediary of exchange or any designation of a unit of exchange. This was barter. As barter became inadequate to effect the exchanges of increasing volumes and varieties, utilities came to be exchanged for an intermediary of exchange which of itself was a concrete utility. Different commodities at different times and among different peoples have served as such an intermediary, ranging from the shells and beads of primitive tribes and the cattle of the Greeks to the tobacco of the early American settlers. As buying and selling extended with the progress of civilization, the concrete embodiment of the unit of exchange came in greater and greater degree to be in the form of metal of one kind or another. Gold and silver tended to displace other metals for this purpose, and in the last half century specified measures of gold have been adopted as units of exchange by virtually all the nations of civilization.

When payment is received for utilities sold and payment is made for utilities bought with a concrete utility which serves as an intermediary of exchange, and when a specified measure of such an intermediary is the unit of exchange, utilities are sold and bought for money. Money,

in origin and in essence, thus consists in a commodity serving as an intermediary of exchange which is separate and distinct from the utilities exchanged by means of its use as an intermediary. Utilities are sold not only in terms of that commodity but for measures of that commodity and payment is made not only in terms of that commodity but with measures of that commodity.

Because gold is the commodity accepted by the peoples of civilization as the intermediary of exchange, and in each nation the unit of exchange designates a specified measure of gold, it still is the general conception that fundamentally utilities are sold for gold and bought with gold, that the measure of gold specified as the unit of exchange is the standard by which utilities are sold and by which utilities are bought.

A separate and distinct commodity utilized as an intermediary of exchange is of itself a utility in that it is sold and bought. It is sold when paid for utilities bought, and bought when received in payment for utilities sold. In the earlier stages of buying and selling the intermediary of exchange was a utility useful in itself, of such general usefulness that it was readily accepted by any person in payment for whatever was sold and thus paid by any person for whatever he bought. Thus measures of utilities of any kind which were sold and bought came to have a ratio to the measure of the intermediary which was designated the unit of exchange. Since utilities sold and bought thus have the ratio of the measure of the intermediary designated as the unit of exchange, they also have a ratio to each other. Thus in terms of the unit of exchange were expressed not only the ratio of utilities to the unit of exchange, but also the ratio of respective measures of utilities of one kind to respective measures of utilities of other kinds, the ratio of measures of utilities of each kind which were sold and

bought to measures of utilities of all other kinds which were sold and bought.

Since a specified measure of an intermediary of exchange was the unit of exchange, that specified measure of that intermediary was the unit of price. When prices are expressed in terms of a specified measure of a specified commodity, they rise and fall as there are changes in the relations between the supply of and demand for that commodity. If the transactions it is desired to effect are great in number or large in volume in relation to the supply of that commodity, that is in relation to the supply of money, prices expressed in terms of the unit of exchange rise, because it is necessary to sell more utilities in order to obtain a given number of units of exchange. If the transactions it is desired to effect are small in number or in volume in relation to the supply of money, prices expressed in terms of the unit of exchange fall, because a greater number of units of exchange can be obtained for given measures of other utilities.

Perturbations in prices due to perturbations in the supply of money have been one of the curses of industry and commerce and therefore one of the curses of civilization. Throughout the centuries there has been incessant endeavor to obtain relief from the perturbations due to these causes. The utmost available relief was found in the universal adoption of the gold standard. Gold serves an indispensable purpose, but even with the gold standard there are rises and falls in the prices of utilities due to fluctuations in the supply of money aside from fluctuations in the interrelations between the supply of and demand for utilities, the buying and selling of which it is the function of the gold standard to facilitate. This has long been recognized by economists. For example, they make a distinction between "nominal wages" and "real wages." Nominal wages are

the payment to an employee expressed in dollars. Real wages are the command over utilities accorded him by the dollars received.

If prices throughout all buying and selling were determined solely by interrelations between the supply of and demand for utilities sold and bought, if the dollars received were determined by such interrelations at the time of sale and dollars paid were determined by such interrelations at the time of purchase, there would be fluctuations in the prices of respective utilities as the supply rose or fell in relation to the demand, which is the same as to say when the demand fell or rose in relation to the supply, but there would be no fluctuations in prices due to fluctuations in the supply of a separate intermediary of exchange.

In the course of its evolution the modern banking system has tended more and more to facilitate the approach to such a condition. In the normal course of production, buying and selling in times of peace, utilities in by far the vaster proportion, especially in the domestic commerce of such an advanced nation as the United States, are sold and bought without thought on the part of buyer or seller that the certificates which pass in payment represent gold or that gold could be obtained for them. Progress toward this condition is interwoven with the evolution of the gold standard. The maintenance of the condition which has been attained and its further development depends upon the maintenance of the gold standard until the attainment of the millennium in which all men are honest and the certificate of payment rendered by any buyer to any seller is "as good as gold." In by far the greater number of business transactions, this ideal has been attained and is observed.

XLI

CHECKS, DRAFTS, BILLS OF EXCHANGE, AND ACCEPTANCES

IF all buying and selling were conducted, not only in accordance with absolute honesty between all buyers and sellers, but also without self-deception on the part of any buyer or any seller, that is, if all which is incident to the processes of buying and selling were based absolutely upon utilities sold and utilities bought, there would be no need for the concrete embodiment of an intermediary of exchange in the form of money in the original significance of that term. A certificate expressed in terms of dollars paid by the buyer to the seller would certify that property in the utility or utilities sold having the exchange ratio of that number of dollars had passed from the seller to the buyer. As the seller in turn became a buyer a certificate paid by him expressed in terms of dollars would certify that property in the utility or utilities bought having the exchange ratio of that number of dollars had been acquired by him.

There never could be more of exchangeable dollars paid than had been received from the sale of utilities and there never could be more of exchangeable dollars received than were paid for utilities sold. Promises to pay exchangeable dollars in the future for utilities acquired in the present would be redeemed when those utilities had been sold. In the continuing processes of buying and selling all exchangeable dollars specified on certificates paid by buyers to sellers would represent utilities actually sold and bought. Dol-

lars received from the sale of utilities would pay for that utilized in the production of utilities.

Under such a millennial condition the buyer of utilities would pay to the seller a certificate expressed in terms of exchangeable dollars he had received in payment for utilities sold. Buyers and sellers would continue to pay and receive such certificates as utilities were sold and bought. The buyer would give his personal certificate, a document signed by him, certifying that the seller had sold utilities having the exchange ratio of the number of dollars specified and therefore correlatively certifying that he was entitled to buy utilities having the exchange ratio of that number of dollars.

The certificates paid by buyers to sellers would specify different numbers of exchangeable dollars. As a seller became a buyer he would desire to use the exchangeable dollars which he had received in buying utilities of different kinds from different sellers in different measures for which different numbers of exchangeable dollars would be paid. It would be necessary for a buyer to issue certificates to different persons in different numbers of exchangeable dollars for different measures of utilities bought, and sellers would receive certificates from different persons in different numbers of exchangeable dollars in payment for different measures of utilities sold. Each buyer and seller would be obliged to keep record of exchangeable dollars received and exchangeable dollars paid, and would be obliged to have the mechanism requisite for issuing certificates and canceling certificates.

It would be a matter of convenience and economy for all buyers and sellers if there were a central place of record in which certificates received were entered to the credit of him who received them and certificates paid were entered to the debit of him who paid them. This is a principal func-

tion of the modern bank. The certificates paid by buyers and received by sellers are in vastly the greater proportion of the form designated as a check. A check paid by a buyer specifying certain numbers of exchangeable dollars is deposited by the seller in the bank where the number of dollars specified is entered to his credit and to the debit of the buyer.

The millennial condition has not been attained but a certain approach to that condition is evidenced by the fact that in the processes of buying and selling, checks, which are personal certificates of the buyer, are continually passing between buyers and sellers and continually being entered to their debit and their credit on the books of banks. The seller who accepts the check of the buyer has confidence in his honesty. Such confidence rests upon the reputation of the drawer of the check for business integrity and upon the belief that he has requisite credits at the bank. Such confidence and belief do not attach to all persons and even with those to whom it does attach it is held only by that smaller or greater number who have the requisite information for its basis. A bank is not responsible for the payment of a check which overdraws a depositor's account or for the payment of a forged check, but a bank does not continue to keep an account with a depositor who violates the principles of business integrity. Thus the fact that a depositor continuously has an account at a bank is a certain certificate of his integrity.

Not only are checks drawn upon banks but kindred instruments are utilized. A draft is an order, virtually a check, of one bank upon another bank. A bill of exchange is a bill for utilities sold, payable usually when the utilities have been received by the buyer. When a draft of a seller for payment at a specified time for utilities sold is accepted by the buyer, it is a "trade acceptance." When certified

by a bank it is accepted by the bank and thus is designated a "bank acceptance." Checks and bills of exchange also may be certified by a bank. Such a certificate by a bank means that the bank guarantees payment.

XLII

COINS, GOVERNMENT NOTES, AND BANK NOTES

PERHAPS the larger number, although not the larger volume, of business transactions consist of the minor buying and selling which enters into the ordinary routine of living. There are purchases at retail stores and fees for personal service of one kind or another for which "cash" is paid. Cash originally signified the concrete embodiment of the intermediary of exchange known as money. Such transactions are often between buyers and sellers without personal acquaintance and in any event usually involve payments in such small amounts and of such passing consequence that it would be an insufferable nuisance if every buyer were to issue his personal check to every seller. For example, it is preposterous even to think of fares being so paid upon trolley cars, or upon the elevated railroads and subways of a great city. Even under the millennial conditions of absolute and universal integrity, there would need to be certificates of payment in small denominations which could readily be used by all buyers and would readily be accepted by all sellers.

Such certificates are the coins of daily use made of copper, nickel and silver, representing fractional parts of a dollar. For use in transactions involving larger amounts are coins of larger denominations made of silver and of gold. But in the greater part of the United States gold coins are little used in immediate payment. Great numbers of persons seldom see a gold coin; greater numbers seldom have one in their possession. In transactions involving larger

amounts are used certificates in the form of bank notes and government notes expressed in terms of different numbers of dollars, that is, issued in different denominations.

To the end that coins, bank notes and government notes may readily be used by all buyers and readily accepted by all sellers there must be universal confidence and belief in the fact that any buyer can obtain from any seller upon the payment of such a certificate, utilities having the exchange ratio of a dollar, a fraction of a dollar, or multiple of a dollar expressed by it. Although such certificates are universally used in the buying and selling of utilities having such an exchange ratio, the origin is not in the exchange ratio which utilities bear to utilities but in the exchange ratio which utilities bear to the concrete embodiment of the intermediary of exchange known as money.

Through the evolution of many centuries the concrete embodiment of the intermediary of exchange came to be in a metal of one kind or another and finally for the most part in silver and gold. These are designated the precious metals because of their inherent qualities and especially because of the portability, divisibility and durability which particularly adapt them for use as money, a purpose for which their luster enhances their attractiveness. Their use as money developed among many peoples from their use as ornaments: the characteristics which adapted them to the one purpose also adapted them to the other. In order that it might definitely be known just what measures of money passed between buyers and sellers it was necessary that there be certificate of the weight and fineness of the measures of money so used. It was also desirable that the measures of money so certified be of a form convenient for transfer from hand to hand and for retention. Hence the metals serving as money were wrought into the small disks known as coins, each of which bore the designation of a

specified measure of money. The making and issuing of coins virtually became a universal function of a government because of the confidence of a people in its government and because the issue of coins was an authoritative and powerful function which a government did not desire to yield.

The acceptance of coins by buyers and sellers had governmental sanction frequently reinforced by governmental decree. Then as coins were received for utilities sold and paid for utilities bought they were certificates that the possessor had sold utilities in return for which he was entitled to buy utilities. This was an evolution from the earlier stage when the acceptance of the intermediary of exchange depended upon its general usefulness as a utility.

In the course of evolution it was discovered that the actual transfer of coins from a buyer to a seller, often inconvenient and also hazardous, especially when conveyance over a considerable distance was involved, and the often inconvenient and hazardous retention by a seller of the coins he had received, could be avoided by depositing coins with one who was under pledge of safe custody and obligated to pay them to depositors when they were required. Hence arose the keeper of the chest, the medieval *caisse* from which our word cashier is derived. From this is also derived the word cash, originally signifying the contents of the chest.

Then it was found that, as it was not always the actual possession of coins which was desired by buyers and sellers but assurance that actual possession could be secured when desired, payments could be facilitated by a buyer who had coin on deposit giving an order upon the *caisse* to pay a specified number of coins to the seller. When the seller became a buyer he could give an order upon the *caisse*. Thus it came about that the *caisse* could transfer coins de-

posited with him to the credit now of one and then of another in accordance with the orders received by him, without paying out coin except when it was demanded. This is the origin of the modern bank. The word is derived from "banc" the name of the bench over which the early bankers received coins and paid coins, and received orders for payment. The order drawn upon the keeper of the chest was the earlier form of the check upon a bank.

The perception that the ownership, although not the actual possession of coins, could be transferred from one depositor to another in accordance with the written orders upon the bank, and that when payments were made by the drawing of checks upon a bank, coins were demanded in only some of the transactions, led to another step in the evolution.

Banks came to issue bank notes, promises to pay coin upon demand, which were used by buyers and sellers to the extent that they believed coin could be obtained from the source of issue in case it was desired. At first the notes issued by a bank did not promise to pay a greater quantity of metals constituting the intermediary of exchange than the bank had in its custody. As bank notes came to be generally accepted in buying and selling they served the same purpose as coin. They could be deposited in a bank and placed to the credit of the depositor and they could be paid out by a bank and placed to the debit of the depositor. As the notes were promises to pay coin, a bank issuing notes was obliged to keep in its custody a volume of coin, or of metal in the form of bullion which could be transformed into coin, in order to redeem the notes in coin, that is, to redeem its promises to pay in coin if coin was demanded.

Not only did banks so issue bank notes which passed from hand to hand between buyers and sellers in payment for utilities which were sold and bought without coins be-

ing demanded for them, but governments also came to issue government notes which likewise so passed from hand to hand. Government notes, like bank notes, were promises to pay coin on demand. Bank notes and government notes were promises to pay money. Money then was considered to be coins made of the precious metals and the term also was sometimes applied to the metals in the form of bullion. Not only a bank issuing bank notes but a government issuing government notes was supposed to have in its possession a supply of coins or bullion sufficient to enable redemption of its notes in the precious metals upon demand. As the use of bank notes and government notes increased they also came to be included in the designation of money. They also came to be regarded and continue to be regarded as cash.

When coins were the only intermediary of exchange they served to indicate the exchange ratios of utilities which were sold and bought and thus the ratios of utilities of one kind to utilities of other kinds from the standpoint of buying and selling. Bank notes and government notes also served to indicate the ratios of utilities to utilities from the standpoint of buying and selling. The greater the degree in which bank notes and government notes were accepted by buyers and sellers without redemption in coin, the greater was the proportion in which utilities were sold and bought without the use of the concrete intermediary of exchange. This meant an increase in the degree in which the exchange ratios, that is, the prices of utilities, were determined by interrelations between the supply of and demand for utilities and a decrease in the degree in which prices were determined by the relation between these interrelations and the supply of money.

XLIH

THE EVOLUTION OF THE BANKING SYSTEM

THROUGHOUT the evolution of money there has been progress toward a better adjustment of the intermediary of exchange to the exchange of utilities. This progress has been impaired and retarded by misunderstanding of the nature of money and of the ultimate purpose which it serves, and it has been impaired and retarded by the manifestation of the predatory instinct implanted in the nature of man.

As the use of money succeeded barter it became necessary for those who would buy utilities to have money wherewith to pay for them and for those who would sell utilities to receive money in payment for them. There came to be not only the buying and selling of utilities but also the the buying and selling of money, and the buying and selling of the right to the utilization of money.

When coins were the only intermediary of exchange the astute and the crafty sought to accumulate coin, the use of which they disposed of to those engaged in buying and selling. As the supply of metals from which coins were made increased or decreased in relation to the volume of business transactions, the prices of utilities, expressed in terms of the coin, rose or fell because of the increase or decrease in the available supply of the metals. As the unit of exchange expressed in coin would buy more or less of utilities at one time than at another, the astute and the crafty secured gain by taking advantage of these fluctuations. In large measure they obtained control of the increasing supplies of the precious metals and utilized them to their advantage in the fluc-

tuations of prices which they were at times enabled to manipulate because of their control of the intermediary of exchange.

In the earlier period virtually every governmental entity, every petty state, had its own system of coinage and its own units of exchange which differed more or less from the systems of coinage and units of exchange of other states. The astute and the crafty exchanged the money of one state for the money of another state and secured gain by doing so often at the expense of the ignorant and the credulous and of those without resource whom they had at their mercy.

The greater the volume of money emanating from sources of issue, the greater, for a time, is the purchasing power of the sources of issue. There were monarchs who debased the coinage of their governments by issuing coins of less than the specified weight, and coins of the precious metals alloyed with an undue proportion of the baser metals. Governments in adversity were prone to issue government notes in amounts vastly in excess of the proportion which by any possibility could be redeemed by the coin or bullion in their possession. As banks secured gain from placing in circulation bank notes issued as proceeds of discounted promissory notes, they also often were prone to issue bank notes in excess of the proportion which by any possibility could be redeemed in coin or bullion.

The fluctuations in prices due to the increase or decrease in the supply of money in relation to the volumes of utilities sold and bought and to debasement in the quality of the money, are known at first only to those who have the information which enables them to watch the fluctuations. Their effect ramifies slowly throughout the channels of buying and selling. The astute and the crafty secure gain at the expense of the ignorant and the credulous who consider the unit of exchange expressed in terms of money to be a constant and

unvarying unit. When the perturbations due to this cause become violent, when the issue of coins and bank notes or government notes in amounts vastly in excess of the requirements becomes generally known there is perturbation in all business. Sellers do not know what measures of utilities they can buy at a future time with the units of exchange expressed in terms of money which they receive at a given time. In the extreme there are violent fluctuations even from day to day; buying and selling become chaotic. It has sometimes happened that because of such fluctuations business organizations receiving a greater number of dollars for utilities sold than were paid for them or paid in producing them do not receive profit but even sustain loss because the greater number of dollars received does not give command over the utilities requisite to the continuance of their business. The credits actually received are not in the proportion to which they are entitled in return for debits incurred.

On the other hand, when the supply of money has been all inadequate for buying and selling in accordance with the interrelations between the supply of and the demand for utilities, there has been the outcry for more money. In times past there have been various devices for basing the supply of money not only upon the precious metals but upon land, and even upon commodities the supply of which ebbs and flows in greater degree than that of the precious metals. There have been times of a widespread belief that because it is with money that all things are sold and bought, all that is necessary to enable every one to buy and sell to the limit of his desire is for a government to issue more money, that which pretends to be money for no other reason than that it is decreed by the government to be money, what is known as fiat money.

Virtually all of the evils and abuses which have attended

the evolution of money and the banking system are exemplified in the financial history of the United States. There was a period in its earlier history when the country was flooded with bank notes issued by banks of various kinds with little or no regard to their relation to the volume of business transactions. It has been stated that in the period known as the "Wildcat" era, 1395 banks issued over eight thousand different kinds of bank notes of which there were about six thousand counterfeits. After the Civil War it was decreed that bank notes could not be issued in excess of the amounts specified on the face of government bonds bought by the issuing bank and held by the government as security for the issue of such notes. This resulted in a supply of currency that sometimes was redundant and sometimes was scant. When the supply of currency became scant there arose the vociferation that there ought to be more money, that the government ought to issue more money. At times the demand that the government issue fiat money was widespread. In 1893 there was the outcry that the scarcity of money was due to the demonetization of silver consequent upon the adoption of gold as the basis for the money of the United States. The presidential campaign of 1896 was fought upon this issue. The people of the United States declared in favor of gold as the basis for money.

The intent of the gold standard is that every certificate expressed in terms of the unit of exchange, no matter what may be the form of the certificate which passes in payment, shall be as good as gold. This characteristic of money is frequently designated as soundness. In the monetary campaign of 1896 the proponents of the gold standard announced that they were adherents of sound money.

One test of the soundness of money, whether it is as good as gold, is whether, for a certificate of payment other than gold, gold can be obtained, whether concrete embodiment in

gold coins or gold bullion of the specified weight and fineness can be obtained upon demand at the source of issue in exchange for that certificate.

Another test of the soundness of money, whether it is as good as gold, is whether for a certificate of payment, whatever its form, utilities of any kind can be bought having the ratio of the units of exchange specified by that certificate the same as though that number of units of exchange was embodied in gold.

Gold has displaced other concrete embodiments of the unit of exchange not only because of its durability, divisibility, portability, susceptibility of coinage and its exquisite luster but also because of the belief that the supply of gold remains more nearly constant in relation to the volume of business transactions. The adherents of the gold standard believed therefore that fluctuations in the prices of utilities exchanged by the use of gold as an intermediary would be less marked and less frequent than if any other substance were so used. This belief has abundant justification, but nevertheless there have been many fluctuations in prices in general due to variations in the supply of gold.

As the modern banking system evolved such certificates of payment as the check, draft, bill of exchange and acceptance, these certificates have facilitated buying and selling without the direct and actual transfer of gold. But there are cases when a seller finds it inconvenient, or for other reasons is unwilling, to accept in payment anything but gold. Such cases in greatest number in the United States arise from the buying of utilities and from the selling of utilities to residents and business organizations of other countries.

In the domestic commerce of the United States the minor coins of copper, nickel and silver, bank notes and government notes, are accepted without question in all transactions in which certificates are used because of the belief that they

are as good as gold. But they are actually as good as gold in the sense that they are received in payment for utilities sold having the exchange ratio of the units of exchange specified on the certificates, in the belief that they can be used in payment for utilities bought having the exchange ratio of the units so specified. The fact that in vastly the greater proportion of all business transactions within the United States such certificates pass between buyers and sellers without thought of demanding their redemption in gold, and often without thought that gold could be obtained for them on demand, strongly indicates that the units of exchange specified on such certificates indicate the ratio of utilities to utilities from the standpoint of buying and selling. Moreover, there is never enough gold in the United States at any one time sufficient for the redemption of such certificates that pass in the course of buying and selling in any one day.

Not only are government notes and bank notes issued in the United States specifying units of exchange, that is, dollars, in amounts vastly greater than the available supply of units of exchange embodied in gold, but the development and extension of the use of checks, drafts and kindred instruments in connection with entries to debit and entries to credit on the books of banks has vastly extended the buying and selling of utilities without the use of either gold, bank notes or government notes.

A depositor in a bank, an individual or an organization having an account with the bank, has entries to his credit on the books of the bank in amounts expressed in terms of the dollar, the unit of exchange. When he makes a check in favor of one to whom he desires that a portion of his credits be transferred the recipient deposits that check in a bank, where the number of dollars specified is placed to his credit. If a check is drawn upon a bank in which the payee

has an account it is there deposited, the amount there entered to his credit and there debited to the drawer. If the account of the payee is with another bank, no matter what bank or in what part of the United States, he deposits the check in that bank which enters the amount to his credit and places the check in the course of transmission to the bank upon which it was drawn where the amount is entered to the debit of the drawer.

A check is a certificate that utilities have been sold having the ratio of exchange specified. Excluding gifts, when a check is drawn by a depositor against entries to his credit on the books of a bank, it indicates that he has bought utilities having the ratio of exchange specified.

In that a check received, no matter upon what bank it is drawn, may be deposited in any other bank, payment for utilities sold in any part of the United States may be used in the purchase of utilities in any part of the United States. Thus utilities resulting from the application of productive force to matter at any place in the United States may be bought at any other place in the United States. From utilities sold at any place within the confines of the nation may be obtained command over human effort or any other factor utilized in the production of utilities at any other place within the confines of the nation.

Banks are not only an agency for facilitating buying and selling by the issue of bank notes, and the making of debit and credit entries in accordance with checks drawn and checks received by their depositors, but they are also an agency for facilitating buying and selling by the discounting of promissory notes, bills of exchange and acceptances.

When a promissory note is discounted by a bank, the proceeds—the number of dollars specified on the face of the note, less the discount, the number of dollars charged by the bank for its service—are placed to the credit of the dis-

counter. These are immediately utilizable dollars upon which he can make check for any utilities he may desire to buy. A prudent bank does not discount a promissory note unless it has confidence in the integrity and business judgment of the drawer of the note. As all the various stages and processes of production are concerned with the production of utilities for sale in the future, the discounting of notes often facilitates the production of utilities for which there will be demand on the part of an increasing population, or an increasing demand because of the serviceability of the utilities. If the expectations are not realized, the bank has recourse against all in which the drawer may have property. It may force the sale of that in which he has property. In such a case it is dollars obtained from the sale of that in which there is property, dollars determined by the interrelations between the supply and demand for that which is sold, wherewith the note is paid and not gold.

If there were no limit to the number of dollars banks could place as proceeds to the credit of those for whom they discount promissory notes, to the extent that banks as well as drawers and payees were unscrupulous, imprudent, or over-sanguine, there might be credit entries on their books in excess of those obtainable for utilities in the processes of buying and selling, and vastly in excess of the dollars obtainable in the form of bank notes, government notes and coins. When discounting is so excessive that dollars in amounts adequate to pay notes discounted cannot be obtained from the sale of property of the drawers, or endorsers if there be any, the loss falls upon the bank. The dollars it has advanced may have been utilized in the purchase of utilities but there has not been the sale of utilities for dollars sufficient to repay those advanced. The unscrupulous, imprudent and over-sanguine are prone to resort to such discounting at times of high prosperity. The

result is similar to that when coins, bank notes and government notes have been issued in volumes far exceeding those requisite to effect the buying and selling of utilities. Not only do prices rise because of the increased volume of credits, but production often diminishes because those who have incurred indebtedness they cannot pay are unable to continue in production. Not only is their ability to continue in production thus impaired or destroyed, but the ability of their creditors, who do not receive payment for utilities sold, to continue in production is impaired or destroyed.

As in the course of the evolution of money it has been decreed that there shall be a reserve of gold sufficient for the redemption of bank notes and government notes for which redemption in gold may be demanded, so also, in the evolution of banking it has been decreed that there shall be a reserve in the possession of the banks sufficient to enable the payment of checks drawn against credit entries on their books. This reserve at first was of metals of any kind used as money whether in the form of coins or bullion. Then it became constituted of gold coin or bullion. Then as notes issued by the government were substantiated not only by gold or bullion in the possession of the government, but also by the power of taxation whereby the government is enabled to meet its obligations, government notes as well as gold coins and bullion were included in the reserve which banks were obliged to hold in order to redeem checks and kindred instruments in payment for which gold or government notes were demanded.

The greater the proportion in which buying and selling is effected by the passing of checks and kindred instruments, and the making of debit and credit entries on the books of banks in accordance with such instruments without gold or government notes being demanded, the lower may be the proportion of reserve to the dollars of credit on the books of

the banks. In different proportions at different times and places these credit entries are derived not only from the deposit of certificates expressed in terms of dollars received in payment for utilities actually sold but also from the proceeds of discounted notes given for utilities with the expectation that these utilities will be sold in the future.

When the banks of the United States were separate institutions with entirely separate responsibility, it often happened that the deposits of many banks had reached or very nearly reached the limit of the prescribed ratio to reserve so that they were unable to discount additional notes, while the deposits of many other banks were so far below the prescribed ratio to reserve that they could discount additional notes. To an extent there was the re-discounting of notes by banks having a high ratio of deposits to reserve with banks having a low ratio of deposits to reserve. But there was not that ready flow of debits and credits which enabled buying and selling to be effected with the requisite facility and there were times when the volume of buying and selling was impaired because banking accommodations could not be obtained.

This was a principal cause for the device and the inauguration of the Federal Reserve Banking System. The banks throughout the United States which are members of the system are classified in regional groups for each of which there is a Federal Reserve Bank. Promissory notes, which have been discounted by member banks, may be rediscounted at a Federal Reserve Bank, and under certain conditions may be again rediscounted at another Federal Reserve Bank. Not only the reserves of the member banks but virtually the entire banking reserves of the country are held in the respective regional Federal Reserve Banks.

Under the Federal Reserve System there has not only been a diminution in the total of gold and government notes

which must be held as reserve against the total of credit entries but in large measure utilities for which promissory notes have been given serve as the basis for the issue of Federal Reserve Bank notes which pass from hand to hand in selling and buying. This may be construed as virtual recognition that the ultimate basis of the unit of exchange is not gold but utilities.

Moreover, balances due from one bank to another may be transferred by telegraph. For example, the Federal Reserve Bank in New York receives daily by telegraph statements of the credits due to all the banks and of the debits due from all the banks in the region in which it serves. It telegraphs each day directing debtor banks to make debit entry on their books of balances due to creditor banks and advising creditor banks to make entries to their credit of these balances. Verification of the telegraphic advices follows by mail, and at intervals bank examiners verify the condition of each bank as shown by the debit and credit entries on its books and the promissory notes and kindred instruments in its possession.

XLIV

SUMMARY OF THE EVOLUTION OF MONEY AND BANKING

THIS adjustment by telegraph of balances between banks is the latest step in the evolution of the making of payments and the receiving of payments which may be summarized as follows.

At first the family was self-sufficient and there was specialization within the family. As respective families and tribes produced more things of respective kinds than met their wants they exchanged their surplus of things of one kind for things of other kinds. This was barter, the first manifestation of buying and selling. Things sold had the ratio of exchange of things bought and things bought had the ratio of exchange of things sold. As barter became inadequate to effect exchanges of many things of many kinds, there developed exchange by means of a concrete intermediary of exchange. This was a pronounced advance in the manner of receiving and making payment. Things sold had the ratio of exchange of measures of the intermediary received and things bought had the ratio of exchange of measures of the intermediary paid. Although the ratios of exchange of things sold and bought were determined in part by the interrelations between the supply of and demand for these things, they also were determined in part by the relation of these interrelations to the supply of and demand for the intermediary.

The desirability that the intermediary be durable, portable, divisible, led to the adoption of the metals as the con-

crete intermediary of exchange and to their being wrought into coin. Different nations at different times used different metals. The desirability of an intermediary acceptable by the peoples of different nations led to the adoption of silver and of gold, and finally to the virtually universal adoption of gold as the basis for money. Coins of other metals are still used, but as a rule they designate fractional parts of the unit of exchange. As things were sold they had the ratio of exchange of the coins received and as things were bought they had the ratio of exchange of the coins paid. There were interminable fluctuations in prices due to the fluctuations in the supply of coins in relation to the volumes of buying and selling. The adoption of gold as the basis for money, and as the standard of exchange, led to a diminution in, but not to the annihilation of, fluctuations due to these causes.

The evolution of bank notes and government notes vastly facilitated buying and selling without the immediate transfer of coins. As the volumes in which bank notes and government notes were issued were not determined by the volume of buying and selling but as a rule by the relation of a volume of bank notes or government notes to a volume of coin or bullion held in reserve, there continued to be fluctuations in prices due to the relations between the volume of buying and selling and the volume of money in the form of coins, bank notes and government notes. The utilization of bank notes and government notes in making and receiving payment was a decided advance over the use of coin alone.

The making and receiving of payments by means of checks, drafts, bills of exchange and acceptances has facilitated buying and selling in accordance with the interrelations between the supply of and demand for utilities sold and bought in a degree previously unknown. But inasmuch as the deposits of the banks are limited to a ratio to the reserve of coin, bullion and government notes, prices continue

to be determined in a degree by the limitation of deposits. The supply of money, if the term be extended, as it sometimes is, to include the supply of coin, bullion, bank notes, government notes and the amount of the entries allowable for banks to make to the credit of their depositors, still has an effect in determining prices.

Under the Federal Reserve Banking Act, utilities in processes of buying and selling may be utilized as a basis for the issue of Federal Reserve Bank Notes under certain stipulations, one of which is that there shall be a reserve of thirty-five per cent in gold or gold certificates against the required net amount which the Federal Reserve Banks may hold to the credit of their depositors, and in addition a reserve of forty per cent against the total amount of Federal Reserve Bank notes outstanding. So long as utilities in existence in the actual processes of buying and selling are sold at prices determined by the interrelations between the supply of and demand for utilities and payment is made and received by means of checks, drafts, bills of exchange and acceptances, there is no demand for gold in the payment of these instruments.

For many years the banks had facilitated the making and receiving of payments by the establishment of a Clearing House at first in the principal cities and then in other cities. At this institution representatives of the banks of a city assemble daily with the checks received by their respective banks. For many years it was the practice that each bank with membership in a clearing house have, on deposit in the vault of the clearing house, coin and government notes in an amount larger than necessary to cover any balance that probably would result from any clearing. This practice was superseded with the establishment of the Federal Reserve Banks which have become the chief clearing centers of the country. On the books of the Clearing House after each clearing each

bank is debited with the amount of the balance if it be against it, and credited with the amount if the balance be in its favor. Coin or government notes may pass from the debtor banks to the creditor banks, or there may be no more than the transfer of credits at a Federal Reserve Bank to the debit or credit of respective banks. Thus, on the books of banks, checks are offset against checks; on the books of the large banks in a principal city checks drawn against many banks in a large area are offset against checks drawn in favor of these respective banks; in a very large city checks drawn against each of a multitude of banks that have accounts with the banks of that city are offset against checks deposited with them that have been drawn against other banks. Because of this evolution the proportion of coin, government notes and bank notes required in the transactions of industry and commerce had so fallen, even before the establishment of the Federal Reserve system, that it was then, after careful investigation, estimated to be less than ten per cent of the aggregate.

When balances between different banks are adjusted by telegraphic advices from the Federal Reserve Bank at New York utilities that are the result of productive force applied to matter are exchanged for utilities that are the result of productive force applied to matter, payment is made and received for the utilization of land, instruments of production and accumulated credits, payment is made and received for human effort applied in whatever manner, in vast proportion without even the thought of demanding gold by those who make and receive payment.

Evolution in this field, as in all fields, has been of slow process, subject to interruption and retardation. Attempts to further this evolution by revolution have always been of injurious effect and have come to naught. Throughout all evolution manifestations of a preceding stage continue as

the succeeding stage develops. It is not the relation from the standpoint of buying and selling of utilities produced and sold to a concrete utility of any kind, even gold, that is the ultimate determinate of the ratios of exchange. That ultimate determinate is in the continuing interrelations between supply and demand which find expression in the ratios between the results of productive force applied to forms of matter.

The adoption of the gold standard marked an advance in civilization. To an extent the utilization of a concrete intermediary is still necessary. This intermediary serves to a degree the purpose of exchange and in a measure of it the unit of exchange is expressed. So long as this necessity continues, and that may be forever, nothing known to man can serve the purpose so well as gold.

XLV

FLUCTUATIONS IN PRICES AND IN THE AGGREGATE OF DOLLARS

As there are fluctuations in the supply of utilities in relation to demand and fluctuations in demand in relation to supply, units, measures and volumes of utilities of different kinds have the ratio of exchange of greater or less units, measures and volumes of utilities of other kinds. The number of dollars received and paid for substances of a given kind may be greater or less in relation to the volume produced at one time than to that produced at another. The dollars received and paid for utilities of the respective kinds into which substance is transformed may be greater or less in relation to the volumes sold and bought at one time than at another. The fluctuations in the ratios of exchange of utilities produced and sold and of all utilized in their production are such that the profit of any business organization expressed in dollars is seldom the same from one year to another and the profit received may have a different command over utilities at different times. It is so also with the payment expressed in dollars received for the utilization of land, of instruments of production, or of accumulated credits. The payment received by those who apply effort in the production of concrete utilities or of utilities of personal service, whether in the form of wages, fees or salaries, expressed in the same number of dollars for the same measures of effort applied may have a different command over utilities of respective kinds at one time than at another.

Although the prices of utilities of respective kinds may

fluctuate as the supply is scant or abundant in relation to the demand, the fluctuation in the price of utilities of any given kind is limited by the range within which profit can be obtained from their sale. As the price, as a rule, cannot, except for comparatively short periods, be either lower or higher than that at which profit is obtained, the tendency is for prices, especially of the indispensable utilities of general use and consumption, to have a certain approximation to uniformity from week to week, from season to season, and even from year to year.

Wages expressed in given totals of dollars a week, salaries in given totals of dollars a year, payment for the utilization of land, of instruments of production, or of accumulated credits expressed in terms of dollars have a certain general relation to the volumes and varieties of utilities which can be bought with a given number of dollars. These relations have an approximation to uniformity throughout shorter or longer periods because production, buying and selling tend to be adjusted to the interrelations between supply and demand. Thus there is a certain general recognition of what constitutes the purchasing power of a given number of dollars whether that number be large or small. It is common to speak of what dollars will buy as signifying various measures of utilities of various kinds which may be bought with a given number of dollars.

The degree in which there is uniformity throughout shorter or longer periods in the purchasing power of a given number of dollars depends upon the degree in which there is uniformity in the exchange ratios of utilities.

As progress in material welfare is indicated by the production of final concrete utilities in volumes and varieties which increase in relation to the population and are more widely diffused among the population, this progress is indicated by an augmentation in the aggregate of dollars. More

dollars are represented by the increasing aggregate of lands and instruments of production utilized in production, by the increasing aggregate of substances and intermediate utilities in processes of transformation, by the increasing aggregate of final utilities, and there is an augmentation in the exchangeable dollars by means of which there is buying and selling of that applied and utilized in production and that produced.

The flow of production, buying and selling is characterized, however, not only by increases but also by diminutions in the number of dollars. In the normal course the aggregate tends toward augmentation because the increases exceed the diminutions. War, pestilence, famine, conflagration, strikes and other causes of derangement in the industrial and commercial equilibrium, may cause a diminution in the aggregate throughout shorter or longer periods.

Exchangeable dollars pay for that utilized in production and they pay for that produced. So long as exchangeable dollars received in payment for that utilized in production enable the continuance of the production of utilities for which exchangeable dollars are received they have not passed out of existence. So long as exchangeable dollars paid for utilities produced accord producers that command over utilities which enable them to continue in the production of utilities for which exchangeable dollars are received, exchangeable dollars have not passed out of existence.

In the competitive struggle there are continual fluctuations in the numbers of those applying effort in return for wages, salaries and fees, and of those having property in land, lands and buildings and instruments of production, in the numbers of business organizations utilizing land, instruments of production and substances, and human effort in the various stages and processes of production. There is the continual augmentation of exchangeable dollars to the credit

of the efficient, and the continual diminution of exchangeable dollars to the credit of the inefficient.

There are periods of general diminution in the production of utilities, when utilities produced may be sold for less than the number of the exchangeable dollars expended in their production, when those applying effort receive a diminishing number of exchangeable dollars in payment, when those having property in land and structures and instruments of production receive smaller return because the sale of utilities produced by means of their utilization diminishes.

Such a period may follow a failure of crops, a scarcity of substances which enter into the production of the indispensable utilities. Then of the exchangeable dollars received by all persons greater portions must be paid for food and clothing. Less remains wherewith less indispensable utilities can be bought and the organizations engaged in their production receive exchangeable dollars in smaller number for such utilities produced. The profit of all organizations diminishes and they are unable to pay the same wages to the same number of employees. The falling off in the production of the substances requisite for transformation into indispensable utilities means that fewer employees are required in the various processes of transformation and that the agencies of transportation with diminishing traffic dispense with the services of many of their employees. During such a period there is a diminution in the exchangeable dollars which all persons receive, a diminution in the entries on the books of banks to the credit of virtually all business organizations.

Not only do the entries to the credit of all persons and business organizations having accounts with banks diminish, but the volume of bank notes and government notes which pass from hand to hand also diminishes because of the de-

crease in the volume of the minor transactions, and there is less need for the smaller coins.

A period of depression is always succeeded by a period of prosperity. The demand for larger volumes of substances for transformation into the indispensable utilities leads to an increase in their production, to the need for the larger forces of employees requisite for the utilization of all which is necessary to their transformation. As the indispensable utilities are obtained with smaller proportions of the exchangeable dollars which all persons receive, all persons can buy in greater degree of the less indispensable utilities, business organizations engaged in the production of utilities of virtually all kinds find sale for their products.

In order that the volume of exchangeable dollars may continuously be adjusted to the volumes of utilities having the exchange ratio of dollars which are sold and bought, there must be means not only for the issue of checks as they are required in the processes of buying and selling, but for the extinguishment of checks when they are no longer so required. There must also be means for the issue of bank notes, government notes and coins as they are required, and for their retirement when they are no longer required.

Under the supposition that all credit entries are derived from the sale of utilities the number of dollars to the credit of a depositor in a bank represents utilities which have been sold. When he makes checks against the entries to his credit the amount is entered to his debit. The checks are then cancelled by the bank, and cancelled checks are returned at intervals to the drawer. The subtraction of the amount of the cancelled checks from the amount of the entries to the credit of a depositor at a given time indicates the balance of entries to his credit against which he can continue to make checks. As he continues to sell utilities for which checks are received, entries to his credit increase. As he continues to

make checks against the entries to his credit these entries decrease. When his checks are cancelled they are retired. Their return to him completes his record and enables him to verify the record of the bank.

If a depositor were to make checks for the full amount of his credit balance and not continue to sell utilities for which dollars were received, the entries to his credit would become exhausted, he could not continue to make purchases. Exchangeable dollars would have passed from his possession but they would not for this reason alone be annihilated. As he drew checks against the entries to his credit he acquired property in that which he bought, and the sellers acquired property in the command over utilities accorded by the checks received. If the recipients made checks for final utilities, which they used and consumed, against all of the credits thus received and the entries to their credit were not replenished, their purchases would have to cease. The greater the number of persons who thus expended all their credits without replenishment, the greater would be the number who could not continue to buy utilities, and the greater would be the diminution in the purchasing power in general. This would mean that that number of persons did not continue to apply their effort in ways for which they received exchangeable dollars in payment or that that in which they had property did not continue to be utilized in ways for which they received exchangeable dollars in payment.

But even so, all these checks paid by those who thus exhausted their credits would have bought final utilities. As these exchangeable dollars passed to retail dealers in payment for final utilities sold by them, they gave the retail dealers command over utilities. They would be entered to the credit of the retail dealers and thus contribute to the credits from which could be incurred debits requisite to the

continuance of their business. As these buyers had exhausted the entries to their credit, retail dealers could not make further sales to them. If the retail dealers were to continue in business, they would have to sell to other customers who had entries to their credit. Moreover, if they were to continue in business they would be obliged to sell utilities to buyers who continued to receive entries to their credit. To the extent that retail dealers could continue to sell to such buyers they might continue in business so long as the credits received equalled the debits incurred. They would increase their business if the credits received exceeded the debits incurred.

A retail dealer who did not obtain credits for utilities sold which would enable him to incur the debits requisite to the continuance of his business would exhaust the entries to his credit on the books of the banks. He would be obliged to dispose of unsold stocks of utilities for what he could obtain for them. If he had property in the land and structures utilized he might likewise be obliged to dispose of it. If he did not have property in them, the right to their utilization would revert to their owner.

It would be so also throughout the various stages and processes of production. Wholesale dealers, manufacturers of final utilities, business organizations engaged in the transformation of intermediate utilities into intermediate utilities, of substances into intermediate utilities to the extent that they obtained checks for amounts equivalent to those from which debits must be incurred for the continuance of their business, might so continue. They might extend their business as there was a surplus of credits received over debits incurred. To the extent that credits received were not sufficient to enable them to incur such debits, the entries to their credit on the books of banks would diminish. Eventually they would have to sell all of that in which they had property.

It is obvious that the greater the proportion of the population which continues to receive credits in payment for effort applied or for the utilization of that by means of which and to which it is applied, the greater are the volumes of utilities produced for the purchase of which debits can be incurred from the credits so received.

If checks were the only certificates utilized in payment the total of entries to credit would diminish as buying and selling diminished, would augment as buying and selling increased. The greater the proportion in which utilities were not sold for credits exceeding debits incurred in production, the less the proportion in which entries to credit would be replenished. The greater the proportion in which utilities were sold for credits exceeding the debits incurred in production the greater the proportion in which credits would be replenished.

Through the long course of evolution, the processes through which government notes and bank notes are issued and retired have become somewhat analogous to those by means of which checks are issued and retired. The processes are not so direct because it is the government or a bank which is the ultimate source of issue, and the requirements for such certificates for use in buying and selling do not press so immediately upon the government or the banks as upon those directly engaged in production, buying and selling.

Moreover, a government note or a bank note is not so promptly returned to the source of issue as is a check. A check usually passes directly from the maker to the payee by whom it is deposited in a bank whence it is forwarded to the bank upon which it is drawn. A check sometimes passes from hand to hand, each person who transfers it endorsing it with his name and thus making himself responsible for the payment of the dollars specified on its face. Even

in such exceptional cases, it is seldom very long between the time a check is drawn and the time it is presented for payment to the bank upon which it is drawn. Entries to debit and credit are promptly made and the check is promptly canceled.

The responsibility for the payment of units of exchange specified on the face of a government note or a bank note is with the source of issue. Such a certificate may have passed from hand to hand in a long series of transactions before it is deposited in a bank. Individuals who do not have bank accounts may retain such certificates in their possession until they are expended. Business organizations may keep them in their tills until they are paid for current expenses. But virtually all business organizations and increasing numbers of individuals have bank accounts. Soon or late government notes and bank notes are deposited by a recipient in a bank and the dollars specified are entered to his credit.

As the demand for such certificates decreases they remain in greater proportion in the vaults of the banks. As the demand increases they are paid out in greater proportion by the banks.

When banks were separate and distinct institutions each having the authority to issue bank notes, the respective banks secured profit by issuing their respective notes as proceeds of promissory notes for the discount of which they made a charge. The bank notes issued by a bank accorded the immediately utilizable command over utilities desired by the discounter of the note. Logically they should be returned to the bank and retired when the promissory note was paid. But the notes often passed from hand to hand in an indefinite series of transactions before being deposited in any bank. Thus the volume of bank notes issued by a particular bank were kept in circulation oftentimes after the payment of the promissory notes, as proceeds of which the

bank notes had been issued. It was to the interest of each bank to keep its own notes in circulation and thus to facilitate the retirement of the notes of other banks. Hence at many times and in many places it became the custom of each bank, when notes issued by other banks were deposited with it, to forward these notes to the sources of issue for redemption. Such redemption might be effected by entries to the credit of the issuing bank in payment of balances due from it, or by the transfer of gold from the issuing bank.

Under the Federal Reserve System when bank notes are returned to the bank of issue they are kept in its vaults until there is demand for their reissue. As under the Federal Reserve System bank notes issued are based in large proportion upon utilities in process of buying and selling, the volume of these notes in circulation tends to augment or to diminish as the volume of transactions augments or diminishes. Thus has been obtained a forward step in the buying and selling of utilities at prices determined by the interrelations between the supply of and demand for these utilities.

The forces which tend to adjust the volume of bank notes and government notes to the buying and selling which give rise to the demand for such certificates also tend to adjust the volume of the coins which in greater proportion represent fractional parts of a dollar and are used in minor transactions. Coins may pass from hand to hand in an indefinite series of payments as do bank notes and government notes but like them they are sooner or later deposited in a bank. As the demand diminishes the volumes retained in the vaults of the banks increase. As the demand increases, the volumes retained diminish. As the demand continually increases the government is obliged to increase coinage.

Such degree of achievement as has been attained in the United States in the adjustment of the various kinds of certificates which pass between buyers and sellers to the needs

of industry and commerce, has been the result of slow and painful evolution. There have been times when the issue of bank notes, government notes and coins was redundant and times when it was scant. The great problem has been to adjust the receiving in terms of dollars for that which is sold, and the payment in terms of dollars for that which is bought to the interrelations between the supply of and demand for all which is sold and bought.

Such achievement as has been made toward the attainment of such an adjustment between peoples of the United States and those of other nations, and between the peoples of other nations between whom there is buying and selling, has been more slow, more painful and marked by far less progress.

XLVI

BUYING AND SELLING BETWEEN THE NATIONS

As civilization has advanced, buying and selling have extended between the peoples of the different nations. Civilization advances as the industrial régime succeeds the militaristic régime, as fighting gives way to peace.

As the production of simple articles of use in volumes greater than requisite to supply their own wants led to the first buying and selling between families and clans, so also the production of utilities of various kinds in volumes greater than requisite to supply their own wants leads to buying and selling between the peoples of different nations. Soils, forests, mines and waters in different parts of the world are respectively better adapted to the production of substances of respective kinds than those of other parts of the world.

When a slowly developing people first enters upon buying and selling with another people, it usually sells the substances peculiar to its environment, or the utilities into which they are transformed by the immediate work of the hand. In payment for such utilities, the slowly developing people are likely to obtain final utilities produced through more elaborate processes by peoples highly developed. By slow degrees they progress to the attainment and utilization of instruments of production and to an industrial and commercial organization.

Buying and selling between the peoples of different climes was extended by the use of sailing vessels. It has been so

accelerated by steamships that there is buying and selling between virtually all of the nations of the world, or rather between producers and dealers who are members of these different nations. The industrial and commercial development of a backward country has often been stimulated by the advent of men of skill, experience and foresight from the more civilized countries.

The earlier trading between a more highly developed nation and a less developed nation, as well as between one and another people of a low degree of development was by barter. The captain, who often was the owner of a sailing vessel, purchased a cargo at the place of embarkment which he traded at a more or less remote port of a foreign land for things there obtainable, and these he conveyed to the port of embarkment for sale. Or sometimes he traded between one port and another of different lands. Or if he did not own a sailing vessel he was entrusted by its proprietors with a cargo which he similarly traded for things of remote lands for the conveyance of which he was responsible to the proprietor of the craft who might be an individual, a firm, or a company.

As buying and selling increased and extended between the peoples of different lands barter became inadequate just as it had become inadequate in the overland buying and selling between different tribes and races. The use of money developed not only between the buyers and sellers of one tribe, race and nation but also among the buyers and sellers of different peoples of different lands. Unutterable confusion arose because of the different commodities used as money by different peoples and the different units in which the various intermediaries of exchange were designated. Throughout the centuries this confusion has slowly tended toward clarification as the metals displaced other substances, as gold and silver tended to displace the baser metals. It

was necessary that there be an intermediary of exchange acceptable to the traders of any nation and any land between whom there was buying and selling. Gold has come to be recognized virtually throughout the world as that intermediary.

The monetary and banking systems under which there is an increasing tendency to the adjustment of the units of exchange which enter into buying and selling to the volumes of business transactions, especially that adjustment effected by checks, drafts, bills of exchange, acceptances and entries on the books of banks, are of comparatively recent development.

This development is among the nations of the most advanced civilization whose institutions have attained a degree of stability and solidarity. As there was a time in the earlier history of these nations when money in concrete embodiment was requisite to virtually all buying and selling, so also are there backward peoples to-day whose buying and selling is effected by the use of money in concrete embodiment. Their development has been facilitated by the supplying of money by the more advanced nations and by the traders of the more advanced nations who deal with them.

When a nation adopts the gold standard it pledges itself to redeem in gold upon demand certificates of payment in whatever form issued by its government or by banks or other sources of issue for which the government is responsible. If this pledge were never violated and there were never any possibility of its violation, the government notes and bank notes of the issue of any country conceivably could pass between the buyers and sellers of that country and those of any other country. The attainment of this universal acceptability would involve a certain uniformity in the designation of the units of exchange, and in the weights of gold constituting these units. As it is they are not only ex-

pressed in terms of the unit of exchange of the country of issue, but in the language of that country.

Moreover, the evils which have attended the development of money have beset every country in which money has been issued. Coins have been minted of less than the prescribed weight and fineness, government notes and bank notes have been issued in amounts vastly in excess of those which by any possibility could be redeemed in gold and vastly in excess of the volumes that would have been determined by buying and selling in accordance with the interrelations between the supply of and demand for that sold and bought.

As development in the use of money led to means by which could be avoided the actual transfer of coin between buyers and sellers of one nation, so also there has been the development by means of which payment can be effected between one country and another with diminution in the shipment of gold. Thus payment is often received for utilities produced in one country by utilities produced in the country in which they are sold under adjustment effected by bills of exchange or kindred instruments in which the unit of exchange of one country is converted into the unit of exchange of another. If, however, balances are due from the buyers of one country to the sellers of another, gold may be demanded in settlement of them. When gold is shipped from one country to another it is the actual weight and fineness of the gold that determines its acceptance and not the number of coins, no matter by what government they are issued, or in what unit of exchange they are expressed.

At the same time that sellers of one country have bills of exchange received for utilities shipped to buyers of another country, not only may there be sellers in the second country who have bills of exchange for utilities shipped to buyers of the first country but there may be many sellers in each country who have bills of exchange against many buyers in other

countries. Banks and bill brokers buy the bills of exchange payable in respective countries. By offsetting the bills due in one country against bills due in another country payment is effected by debit and credit entries on the books of banks. There is such adjustment of payments not only between one and another country but of payments due in various countries, the shipment of gold being necessary only in payment of the balances due respective sellers, perhaps in only one of many countries.

The shipment of gold involves the payment of freight, insurance and interest upon the gold while it is in transit. In normal times no more will be paid by banks and bill brokers for bills of exchange than the amount requisite to pay freight, insurance and interest if the gold were actually shipped. As the balance of bills of exchange is due to sellers of a given country, less is paid for the bills against them than if the balance were due to the sellers of another country. Thus in normal times is established the rate of exchange which is greater or less between one country and another as the balances due from one country to another are greater or less. The balances due from one country to another are also affected by "invisible indebtedness." This, often considerable, is constituted in large part of reimbursement for cash advanced to travelers upon letters of credit and travelers' checks, or upon personal remittances such as are made by emigrants to their families at home, and of remittances in payment of interest and dividends.

The country to which gold is shipped in payment of balances due to sellers in that country, has a larger supply of gold. Thus it has a larger reserve which may be used to support a larger issue of government notes, bank notes, or a greater volume of credit entries based upon discounted promissory notes. The country from which gold is shipped has a smaller supply of gold and thus a smaller reserve for

the monetary requirements of the country. Thus the shipping of gold to another country or the receiving of gold from another country, may have an effect upon the flow of debits and credits which is not in relation to buying and selling determined by the interrelations between the supply of and demand for utilities sold and bought.

In abnormal times the situation is different. The war of 1914 caused the greatest dislocation of modern times in the banking and monetary systems of the nations of the world. Various nations whose supply of gold had been drained for payments to other lands issued government notes and bank notes with little or no regard to the reserve of gold in their possession and with little or no regard to the interrelations between the supply of and demand for utilities sold and bought. The unit of exchange in every country of continental Europe lost all semblance of stability. The basis of money was neither gold nor utilities. It was the printing press. Prices in each country became indeterminable from day to day, and the rates of exchange between different countries chaotic.

XLVII

THE UNIT OF ACCOUNT

THE evolution which led to the utilization of a concrete utility as an intermediary of exchange and to the specification of a definite measure of that utility as the unit of exchange has been of inestimable and incalculable benefit in providing not only a unit of exchange but also a unit of account. That there can be buying and selling in terms of money which does not have concrete embodiment is demonstrated by the use in England of the guinea as money of account and by similar use of the florin in parts of Continental Europe. These are designations of units of account which have outlasted their significance as designations of units of exchange in the form of coins. It is related that even in the eighteenth century in British Guiana, the macute was the unit of exchange and the unit of account although the macute was not coined, and this in a country where gold is mined. This unit of account was perhaps introduced in order to avoid the waste of gold on the part of the natives by the British who developed the mining of gold.

The accounts kept by a modern business organization record that expended by it for all which it utilizes in production and that received by it from the sale of utilities produced. Every purchase gives rise to an entry on the records of the utilities bought and of the dollars paid for them, every sale to an entry of the utilities sold and of the dollars received for them. Dollars paid are in anti-position to utilities bought, dollars received in anti-position to utilities sold. When the belief was general that the attainment

of money was the sole object of buying and selling the main purpose of accounts was to show the dollars paid and the dollars received and the balance at intervals of the dollars received over the dollars paid or of the dollars paid over the dollars received.

The progress of industry and commerce, especially of the last half century, has evolved more elaborate records. Under the highly developed methods of the present a business organization itemizes the record of all for which dollars are paid and of all for which dollars are received. It not only itemizes the dollars paid for wages but keeps record of the men to whom they are paid, of the hours or the volume of work performed by each employee or by a group of employees working together. If engaged in the production of substance it records the volume of substance obtained from a given area of the source, and of the efficiency of respective employees and instruments of production in gathering or extracting it. So also, business organizations engaged in the transformation of substances into intermediate utilities, of intermediate utilities into intermediate utilities, of intermediate utilities into final utilities, in the assembling, storing and selling of final utilities and in the transportation of utilities, keep record of the efficiency of the respective employees and respective instruments of production and of the materials consumed in the processes of production in relation to utilities produced. These developed records show not only the relation of that which is bought to the dollars paid for it but also the relation of each factor of productive force to that to which it is applied, and the results of the application. By thus itemizing the factors which enter into the production of utilities of the different kinds and grades an organization shows not only the dollars received from the sale of utilities of each kind and grade but the relation of the factors of productive force applied and the forms of matter to which they

are applied in the production of the utilities of the different kinds and grades.

If all business organizations kept such highly developed records they would show not only the ramifications of dollars as they continually pass between buyers and sellers in the various stages and processes of production but also the ramifications of the application of productive force to forms of matter and the results of its application as utilities pass from sellers to buyers throughout the various stages and processes. If each individual or each family kept not only a record of the dollars received and dollars paid, but also an itemized account of all for which the dollars were received and an itemized record of the final utilities used and consumed and the degree of their serviceability, there would be record of all the ramifications of productive force and of all the transmutations of that to which it is applied in the production of final concrete utilities and there would be record of the serviceability of these utilities in meeting human wants.

If such records were universally kept, the relation of dollars paid and dollars received to utilities sold and utilities bought would become manifest. Rises and falls in the prices of respective utilities due to varying interrelations between the supply of and the demand for the factors utilized in production and utilities produced could be distinguished from rises and falls in the prices of respective utilities due to the relation between these interrelations and the supply of money.

When there are variations in the purchasing power of dollars not due to the interrelations between the supply of and demand for that which is utilized in production and that which is produced, there must be that readjustment which tends to bring the purchasing power of dollars into accord with such interrelations. The readjustment proceeds with less retardation in the case of prices not subject to con-

tracts. It is more difficult in the case of prices fixed by contract. If there is a general increase in the supply of money, not due to such interrelations, those who receive payment of a specified number of dollars under continuing contracts find their command over utilities diminishing as the purchasing power of the dollars received diminishes. If there is a general decrease in the supply of money, those who receive payment under continuing contracts find their command over utilities increasing as the purchasing power of the dollars received increases. When there are alternating fluctuations in the supply of money, the element of uncertainty which pervades all buying and selling increases. It becomes more difficult for buyers to buy and for producers to sell.

When he who buys does not pay, the ability of the seller to continue to sell, of the producer to continue to produce and sell is impaired. The greater the number of buyers who do not pay, the greater is the impairment in the ability of producers to continue to produce and sell. The failure of buyers to pay and the consequent inability of sellers to buy may ramify throughout a community, throughout community after community, and at times throughout an entire nation.

In the years immediately following the termination of the War of 1914 the effect ramified throughout the civilized world. A principal cause for the retardation of buying and selling was the increase in the supply of money vastly out of proportion in relation to the volume of buying and selling. As the supply of money receded, prices of utilities awaiting sale had to be reduced if they were to be sold. If their production was to continue lower prices had to be paid for all that was utilized in their production.

Increase in the supply of money caused by an increase in the volume of business transactions and in relation to this increase is expansion. Such expansion is beneficial. Decrease in the supply of money caused by decrease in the vol-

ume of business transactions and due to this decrease is contraction. Such contraction is beneficial. Increase in the supply of money in excess of the increase in the volume of business transactions and out of relation thereto is inflation. It is injurious. In order to restore the equilibrium between that which is utilized in production and that which is produced, there must be deflation. The immediate process of deflation may entail hardship, but the outcome is beneficial unless the process is carried to such an extent that there is an inadequate supply of money in relation to the volume of business transactions that might be effected under the interrelations between the supply of and demand for that utilized in production and that produced; then it becomes injurious.

A business organization must from time to time ascertain the relations between that expended in production and that received for utilities produced. No matter how highly developed its accounting methods it is an impossibility for it to balance all the items of all the factors utilized in production against all the items of utilities produced. The balance must be expressed in terms of the unit of exchange. It may itemize the factors utilized in production and it may itemize the utilities produced to show with a greater or less degree of accuracy the relation of measures of productive force applied to measures of utilities produced, but to arrive at a balance the total of dollars expended must be placed in antiposition to the total of dollars received.

Hence the dollar is not only a unit in terms of which payment is received at the time of sale and payment is made at time of purchase. It is a unit also in the continuing record which shows not only the relation of the dollars received to the dollars expended in the immediate processes of production but also the relation of the dollars received to the dollars which have been paid for all that is continuously

utilized in production. To the extent to which the dollar is determined by interrelations between the supply of and demand for that utilized in production and utilities produced, the dollars received would indicate the relation of all the factors utilized to the utilities produced. To the extent to which the dollar is determined by variance in the relation of the supply of money to these interrelations there is confusion not only as to the purchasing power of dollars paid for that immediately utilized in production and of the dollars received for that produced, but as to the relation of the dollars invested at one time in that continuously utilized in production and the dollars which could be received at another time for that in which they have been invested, and as to the relations between the dollars received at one time as return upon the investment and those received at another time.

As a unit of account the dollar can be made the subject of any calculation of which any unit of number is susceptible. For example, investors, speculators, bankers and brokers make elaborate calculation in terms of dollars of the present worth of bonds, of their worth at maturity and of their worth at intervening periods. That which determines the worth at the present or at any time in the future is not the number of dollars but the purchasing power of the dollars. Many theories have been advanced as to why an investment of a given number of dollars can be made to yield return of a greater number of dollars in the future. Since dollars are expended in the production of utilities and dollars are received for utilities produced it is evident that dollars can be received as interest or as profit to the extent that dollars invested in production result in the production of utilities in increasing volumes for which a greater number of dollars are received. Increasing efficiency leads to this attainment. It ultimately depends upon the continuing necessity for pro-

ducing utilities in larger volumes to meet the increasing wants of an increasing population.

What is known as the current rate of interest is subject to fluctuation but the very fact that there is a current rate of interest indicates that there is an approximation to uniformity at different times in the increasing production of utilities in general. This has been demonstrated in recent years in the charts compiled by the financial and governmental organizations from data of production. Although the increases in the volumes of production of different utilities fluctuate from time to time there is an approximation through shorter or longer periods in the ratio of increase, especially of the staple substances and of the indispensable utilities into which they are transformed.

The fact that there is a current rate of interest indicates that in the normal course of industry and commerce the factors utilized in production by the efficient business organizations result in the production of greater volumes of utilities which tend toward meeting the wants of a greater number of persons and are sold for a greater number of dollars than were expended in their production. If all that is continuously utilized by a business organization has been bought by the expenditure of credits obtained from those who have invested them under pledge of their return and the payment of interest, the organization could not continue in business unless it were able to pay interest, that is, unless from the sale of utilities produced it obtained credits wherefrom to incur the debits for the current expenses of production and interest on the investment in that continuously utilized in production. If a business organization have property in that continuously utilized in production it likewise seeks to receive interest on the investment.

When accumulated credits for the utilization of which interest is paid are invested in that continuously utilized in

production, they are expended for concrete things, lands and instruments of production. The pledge of repayment is secured by a mortgage upon these concrete things. In the case of a large business organization, interest tends to become payment for the right to the utilization of forms of matter continuously utilized and thus is in distinction to discount which is paid for the utilization of credits in advance of the receipt of payment for utilities produced. The amount of the accumulated credits so invested is of definite specification of the number of dollars so invested and the interest which is paid is the designation of a specific number of dollars.

Profit tends to become the surplus of credits obtained over those necessary to pay the continuing expenses of production including interest. It tends to become the reward received by a business organization for the efficient application of productive force by means of that continuously utilized in production. As interest must be paid in the amount of a specified number of dollars even though there may be variation in the measures of utilities over which that number of dollars gives command, the attainment of profit, whether expressed in a number of dollars or in the command over utilities accorded by that number of dollars is attended with uncertainty.

Shares of capital stock of a business organization have as a rule been specifically indicated as having the ratio of exchange of a certain number of dollars notwithstanding that they are sold and bought for a larger or smaller number of dollars than that specified on the certificate. In that production is uncertain and is due not only to the utilization of the forms of matter continuously utilized in production, but also to the manner of their utilization, it is gradually becoming the practice that the shares of capital

stock do not bear the specification of a given number of dollars. They are without par value. The dollars paid and received for them depend upon the net earnings and the prospects for a continuance of net earnings. Inasmuch as the volume of production depends upon the efficient utilization of that by means of which productive force is applied and of all to which it is applied, the greater the profit obtained by a business organization under conditions of fair competition the greater is its contribution toward meeting the wants of the population. To restrict its profit to a specified ratio of its investment in what are known as physical assets, would be to impair the incentive to increasing efficiency in production.

As coincident with the use of money buying and selling developed, the perception that he who has money can buy and he who has not money cannot buy, led to the belief that money is the source of purchase. Because payment must be made for that continuously utilized in production and such payment is made with money, money came to be regarded as capital. So long as the volume of money is something separate and distinct from the volume of buying and selling the perception that the more money a person has the more he can buy leads to the endeavor to sell the least and to do the least for the greatest obtainable proportion of the existing supply of money. This is competition for money.

The desire to limit profit arises from an erroneous conception that there is only so much money in existence and that business organizations which secure greater profit than others obtain an undue proportion of the supply of money, leaving less available for others. Greater profit secured by one business organization under fair competition means that it has been more efficient in the production and sale of utilities and thus has conduced in greater degree to the welfare

of the buyers of the utilities. The greater its profit under fair competition the greater is the degree in which it has so conduced.

As the development of the monetary and banking systems tends to the adjustment of the debits and credits by means of which buying and selling are effected to the interrelations between that utilized in production and that which is produced, competition becomes the endeavor to secure the greatest command over utilities which can be obtained from the sale of utilities produced. Then competition becomes that working together and striving together which conduces to the common good.

PART VI

SUMMARY AND CONCLUSION

XLVIII

THE GREATEST GOOD OF THE GREATEST NUMBER

THE nations of the most advanced civilization are those with whom industry and commerce have attained their highest development. Civilization means not only the welfare of a nation but the welfare of the individuals constituting a nation. A pressing problem is so to adjust production, buying and selling that they will conduce in the greatest degree to this welfare. Into this adjustment necessarily enter the characteristics of the existing population, the capacity and disposition of its different members for that living together and working together which constitute civilization.

As it is the wants of the population which create the demand for utilities, it follows that the nature of the wants of those who buy and the proportions in which they are manifested, tend to determine the kinds of utilities which are produced and the proportions in which they are produced. Thus the tastes and the degree of culture of the different individuals of a population is a factor in determining the kinds of utilities they want. So long as a considerable portion of the population want utilities which satisfy the craving for that kind of physical or emotional excitement which impairs the body and the mind, such utilities will in all probability be produced. But notwithstanding periods of apparent retrogression, it seems irrefutable that the tendency is toward wholesome living, that the desire for that which vitiates is waning in the light of the appreciation of that which makes for sound minds in sound bodies. Never has so much dis-

cussion been directed toward the attainment of a higher standard, and never have there been so many associations concerned with that attainment as at present.

Although those engaged in the production of concrete final utilities must produce them in volumes sufficient to meet the wants of the entire population, it is to be reflected that if the efforts of the entire population were devoted to the production of such utilities alone, all persons could have that which makes living possible, but they would not have that which makes life worth living. The attainment of that which makes life worth living depends upon the mental and moral development, the outlook upon life and the receptivity to that which stimulates the wholesome exercise of the physical, moral and mental faculties. Production, buying and selling ought to be adjusted to the utmost ministration to the wants of the entire population, to the attainment by all persons in the fullest possible extent consistent with the welfare and the progress of the social organization of all which ministers to their wants. As the ministration to the wants of each person is provided by the efforts of other persons there ought to be equivalence of exchange. Bargaining and competition tend toward this equivalence.

That competition which leads to the production of wholesome and serviceable utilities at the lowest cost and their sale at the lowest prices, which leads to the production of the greatest volumes of such utilities in relation to all which is applied and utilized in their production, not only benefits those who are more efficient in the processes in greater degree than those who are less efficient, but it contributes to the welfare of the entire population.

If in any of that series of stages and processes which culminate in the production of final utilities of any given kind more land is utilized than necessary, less land is available for other utilization. If more instruments of production

and materials consumed in the processes of production are utilized than necessary, there has been waste in their utilization, and productive force has been diverted to this production which could have been applied in the production of instruments and materials for other utilization. If more substance has been utilized than necessary there has been the waste of substance because that inefficiently utilized could have been utilized in the production of other utilities. If the effort of a greater number of employees has been applied than necessary, there has been waste of human effort because that inefficiently utilized could have been applied in other production.

If higher prices are paid for land or higher rent than that for which the utilization of the requisite land could have been secured, the costs of production are unduly increased. If more is paid for instruments of production and materials utilized in their operation than that for which the instruments and materials could have been obtained, the costs of production have been unduly increased. If more is paid for substance than that for which substance could have been obtained, the costs of production have been unduly increased. The greater the costs of production, the higher the prices at which utilities will have to be sold in order to reimburse these costs, the higher the prices at which they will have to be sold if profit is to be secured by means of which the volume of production can be increased. To the extent that the costs of production of utilities of any kind are thus unduly increased and their prices are unduly advanced, the number of persons who can buy utilities of that kind is the more restricted.

If in any of the various stages and processes of production the wages paid to employees are so high that the total of debits incurred for wages is so great that a business organization is unable from the credits received from the sale

of the utilities produced, to provide and maintain all else which it utilizes in production, it will either have to advance the prices or to diminish and ultimately to cease production. It is so also with each factor which it utilizes in production. From the credits received from the sale of its products, a business organization must incur not only debits for the wages of employees whose efforts are applied in its immediate service, but also debits in the provision and maintenance of that which it continuously utilizes, and for all which it transforms into utilities it sells. The debits thus incurred pass as credits to other business organizations from which they must incur debits not only for wages but for all else which they utilize in production.

If business organizations limit the volume of production in the endeavor to obtain higher prices and greater profit than would be obtained from a larger volume which could be sold at lower prices that would yield requisite profit, they are depriving a portion of the population of these utilities. If organizations of employees endeavor to restrict the work of each employee in order that more may be given employment their action tends to higher prices for utilities produced. If the wages paid employees in the various stages and processes of production are higher than those for which the requisite effort could be secured, the employees themselves, as well as all others, will be obliged to pay more for the final utilities which they buy.

On the other hand, when unrestricted competition has led to the overproduction of utilities, to their production in volumes so great that the credits obtained from their sale are not sufficient to reimburse the debits incurred in their production, not only inefficient but efficient organizations have suffered. Unrestrained competition has led to the condemnation of all competition. Competition has been injurious to the entire population when it has led to that over-

working of the soil which has resulted in its premature exhaustion, to the wasteful cutting of timber without reforestation, to that superficial extraction of minerals which leaves portions in their beds, to the overworking of instruments of production to uselessness, and to the driving of employees without wholesome rest and recreation to premature decrepitude.

Although the principle of competition has been espoused by the people of the United States, the principle of fair competition has never been allowed to work its way. Injury to the general welfare has been due not only to the misuse of their strength by the efficient in the competitive struggle but also to the craving for undue reward by the less efficient. There is ever outcry from those who are worsted in the competitive struggle. They have attained a large measure of popular sympathy even from those who persist in buying the products of more efficient producers. The recognized fact that unrestrained competition leads to many evils, has resulted in the perception that the processes of production, buying and selling must be brought into fuller coördination. So it must be, but if coördination is construed to mean the keeping in competition of the less efficient the general welfare will be impaired by it.

Between the extremes of unrestrained competition and that coördination which seeks to reduce the efficient to the level of the inefficient, lies fair competition. The principles of fair competition have been violated by both employees and employers. Many employers have frequently oppressed their employees, trading upon their ignorance and their necessity to compel them to work for lower wages than they could have obtained had they been in the possession of full information as to the relation between the supply of and the demand for employees over wider areas. Employees have often been compelled to work beyond the limits of

physical endurance without opportunity for needed rest and recreation. This has led employees to resort to combination, to coördinate in organizations known as trades unions which have been amalgamated in national and international associations. Trades unions have persistently sought to force up the wages and to restrict the work of their members, to reduce the performance of the most efficient to the level of the less efficient, in order that all might receive the same wages. They have sought at times to limit unduly the number of persons who might engage in respective kinds of employment in order to enforce the payment of higher wages for them, at other times to multiply needlessly the number of employees in order that unnecessary totals of wages might be secured for them.

They have sought to "standardize" the wages of employees engaged in the same kind of employment throughout wide areas, taking no account of the different prices of utilities due to different interrelations between supply and demand in different parts of the country. They have insisted upon wages enabling employees to maintain a specified "standard of living" regardless of the deprivation caused many other persons applying their efforts in other ways which are of no less benefit to the entire people.

When the trades unions pursue such practices they diminish the production which benefits the entire population in the endeavor to obtain a disproportionately large share of the product for themselves.

XLIX

THE SERVICE OF MANAGEMENT

It is widely claimed and widely believed that labor produces everything and that therefore, labor ought to have a greater share in that which is produced.

Labor may be considered to be the effort applied by employees who work for wages. The term "wages" signifies payment for effort applied under the direction of others who are ultimately responsible for the results of its application. Even so the employee is not without a large measure of responsibility. To the extent that he is conscientious, industrious and efficient his contribution to production may be large or small. The greater the degree in which all employees are conscientious, industrious and efficient, the greater will be their contribution to production, the greater will be the volume of production, and the better will be the quality of the utilities produced. But it is to be reflected that that which in the main has enabled the increase in the volumes and varieties of utilities has not been the application from day to day in a customary routine of the effort designated as labor.

The crude tools and implements fashioned by the hand of primitive man became capital in that they were not immediately consumed but were utilized throughout periods in enhancing the effectiveness of the hand. Capital was the product of labor. The laborer produced the capital which he utilized and he benefited by its utilization. The designs and patterns of the tools and implements which he fashioned were handed down from generation to genera-

tion with little change from one century to another. The variety of tools and implements and their uses did not greatly multiply during the first four thousand years of the historical period. Even the palaces and works of art were wrought by the aid of hand tools of no great variety. The use of steam as power led to the device and construction of more effective tools and machines. The variety and capacity of instruments of production have vastly multiplied as the utilization of gas and electricity has developed. The volumes and the varieties of utilities have vastly increased with the utilization of substances in new ways, with the bringing of new substances within the sphere of utilization and with the discovery of processes by means of which they are more effectively utilized.

This progress has been due to the brains of men who have widened the range of knowledge, who have conceived, designed, invented and discovered. It has also been due to those who have brought the result of their achievement into practical utilization. Those who provide the means whereby discovery and invention are made effective, who organize and manage, who direct and coördinate the efforts of employees in the construction and utilization of that which has been conceived and designed make the results of invention and discovery of avail for the service of mankind. The man who has worked with his hands has often advanced into their ranks.

That which directs and makes effective the productive force both of labor and of capital is the productive force of management. Let it be supposed, for example, that a foreman, seeing four employees applying their efforts with defective coördination, so directs their application that the efforts of two employees are as effective as the efforts of the four had previously been. The increased efficiency of the two employees has been due to the productive force of man-

agement. Let it be supposed that a foreman, seeing four employees working with hand tools of antiquated pattern to ineffective result, provides hand tools of improved design by the utilization of which the efforts of two employees are as effective as the efforts of four had previously been. The increased effectiveness has been due to the productive force of capital in the form of the improved tools, and it has also been due to the productive force of management which provided the improved tools. In either case apparently two employees produce as much as four previously did. If the two employees were to demand that their wages be doubled because the effectiveness of their efforts had been doubled, wages could not be paid to the two employees who were displaced. If, in competition, each of the four employees would be willing to work for the wages he had received before, the efforts of all of the employees could be utilized and production would be increased. If there were a continuing increase in production in relation to the number of employees, employers would be obliged to pay them wages which would enable them to buy in greater measure of utilities produced.

The force of the brain is impalpable and invisible. As the brain has developed, it has directed the activity of the body to a more varied, a greater and higher achievement. The productive force of management is impalpable and invisible; it is the brain of industry and commerce. The effort applied by employees is apparent. The men who direct and coördinate, who determine the kind of instruments of production and materials, the kinds of substances which will be utilized and the manner of their utilization, sit at their desks in offices, scrutinize reports of performance, of costs and receipts, examine the results of experiment and investigation, hold conferences, and on visits to the scenes of operation quietly look on while things are being done.

It was once reported to the management of a railroad company that one of its freight yards had become inadequate to the movement and drilling of the cars which pressed upon its capacity, that the yard would have to be enlarged and the yard tracks extended. A newly appointed general superintendent went out to that yard one morning and spent the day sitting on top of a freight car where he could overlook the operations. He perceived that in order to be shifted from one track to another a car had to be hauled to the extreme end of a yard track and then backed on another track. He arranged for the construction of cross tracks, connecting one track with another, by the utilization of which the facilities of the yard for drilling and moving cars were virtually doubled. He achieved the desired result better than had there been the purchase of double the area of land and the doubling of the yard tracks. Yet that general superintendent did nothing all day long but sit on the top of the freight car, observe and think. The engine men, firemen, switchmen and yardmen, after the capacity of the yard had thus been doubled, were apparently doing all the work just as they had been doing it day after day before.

Although the effect of the productive force of management may not be measurable at a given time in the immediate processes of a given stage of production, it is measurable in the steps by which advance in the processes is attained. This advance is shown by the greater proportion of credits received in relation to debits incurred. This means the production of greater volumes of utilities in relation to that utilized in their production, the ministration in greater degree to the wants of the population.

L

INHERITED MISCONCEPTIONS AND PREVAILING MISUNDERSTANDING

MISUNDERSTANDING of the significance of production, buying and selling and lack of recognition of the principles which underlie their adjustment to the greatest good of the greatest number, are due in great measure to conceptions inherited from the past. For ages it was believed and it is still believed by many, that man's original condition was of blissful enjoyment, that the necessity for work came with his downfall from that condition. This belief found substantiation in the decree coincident with the expulsion from the Garden of Eden "that in the sweat of thy face shalt thou eat bread." The conception that work is a hardship has been reinforced by the teaching of many economists, mostly of a by-gone era, that that which gives pleasure must be purchased at the cost of pain, that sacrifice must be undergone to attain satisfaction. If this idea were expressed in terms of modern business all debits would represent pains and sacrifices; and all credits pleasures and satisfactions. Service rendered by one unto another would be the source of pain to him who rendered it.

But even from the race whose gropings to understand are recorded in the Old Testament arose one who saw in a different light. The psalmist says "For thou shalt eat the labor of thine hands: happy shalt thou be, and it shall be well with thee." During the last half century, the belief that mankind fell from bliss to degradation has given way to the belief that through unceasing struggle there has been

an advance from savagery through barbarism to civilization, that not only the civilization which man has attained, but his very physical and mental structure are due to the exertion which his environment has compelled. His developing brain has impelled that reaction upon his environment which has advanced civilization.

Through many centuries of the Christian Era there was bitter antagonism to the paying and receiving of interest. As production developed it came to be that those who expended money in production obtained more money for that which was produced. Slowly it was recognized that a man who lent money was entitled not only to receive his money back again, but also to participate in the gain obtained by means of its utilization.

Thus the attainment of interest meant the securing of profit: but to this day there is a deep-rooted and widely diffused prejudice against profit because of the conception that profit is obtained by one at the expense of another who therefore has been subjected to injustice. It is quite true that even now profit is sometimes secured through the crafty and unscrupulous taking advantage of the ignorant and credulous. Profit so obtained is in diminishing proportion as there is the widening diffusion of increasing intelligence, and bans are imposed by custom and law. It is not yet thoroughly and generally comprehended that whereas profit may originally have had its root solely in the desire for gain, it has evolved into the means by which material welfare has been advanced, and a widening ministration to the intellect, the emotions and to the spiritual life has been effected.

There is the outcry that profit ought to be limited, that the profit of business organizations ought not to exceed a prescribed ratio to the cost of the so-called physical assets it utilizes. This contention overlooks the fact that it is not

physical assets alone which contribute to production but also the application of effort, and above all the efficiency of the productive force of management. So long as a business organization pays for all it utilizes the prices determined by the interrelations between supply and demand at the time of purchase, and sells the utilities produced at the prices determined by the interrelations between supply and demand at the time of their sale, it not only deprives no one by the attainment of profit, but contributes to the general welfare. The greater the profit it secures, the greater its ability to increase the volume and variety of things produced. Profit may be expended in vicious indulgence, in luxury which serves no purpose; so also may wages. The remedy for this evil is not in that restriction of profit which impairs production, but in the diffusion of that taste and culture which condemns wasteful expenditure.

The strained relations between capital and labor are also in large measure an inheritance from the past. The use of steam as power led to the rapid multiplication of machinery, the utilization of which displaced the efforts of thousands of employees applied in the handicrafts. The use of machinery led to multiplied avenues of employment, but the period of transition was attended with deprivation and suffering. There was the outcry that the age of capitalism was an age of oppression and so it was through shorter or longer periods to many. So many were seeking work that employees were obliged to work long hours under distressing conditions. As invention has multiplied the instruments of production which are utilized in a greater variety of ways, more effort has been required in their construction and more of effort has been required in their utilization. The tendency has not only been to provide employment for increasing numbers but to enable employees to obtain in greater measure with the wages received utilities produced.

The conception still widely held that labor produces everything has led to the belief that those who apply their effort as employees ought to participate in the ownership of all which is utilized in production and of all which is produced. The truth is that a person is entitled to payment for what he sells. Those who sell their efforts as employees are entitled to payment for these efforts. The employer is responsible for the provision of the instruments of production by means of which the effort of the employee is applied, for the provision of the forms of matter to which it is applied and for the sale of the products. An employee is not entitled to participate in the proprietorship of a business organization unless he buys a share in the proprietorship, or unless he receives it as a gift. Those who have proprietorship in an organization are under no obligation to accord a share as a gift. The tendency to corporate ownership manifested by issues of stock has made it possible for any employee who saves a portion of his wages to buy stock. Then he participates in profit if it be secured or in loss if it be sustained.

None the less in a very real sense the instruments of production and all else utilized in production by a business organization are at the service of the employee. By means of their provision he is enabled to apply his efforts to better advantage than he otherwise could, to contribute to the production of utilities in greater degree than if there were no such provision, and to obtain wages which enable him to buy more of utilities than he otherwise would obtain.

In the intent to ameliorate the condition of the wage worker have been attempts to ascertain a so-called national income, a so-called national dividend, and to devise measures for its more equitable apportionment. Before the amount of the national income or the national dividend can be ascertained it is necessary to determine what constitutes

the national income or national dividend. If this income be considered to mean all which is received for all which is sold it includes payment for the effort of the employee applied in production, for land or for its utilization, for instruments of production or for their utilization, for substances, for intermediate utilities, for final utilities, for the transportation of utilities. It includes payment for personal service. Income thus construed would include all the credits received by every business organization and every individual.

But credits are continually being transmuted into debits and debits are continually being transmuted into credits. There is the continual passing of debits which become credits and of credits which become debits, between individual and individual, between business organizations and between business organizations and individuals. The flow of debits and credits is now determined as a rule in the greatest degree by the interrelations between the supply of and demand for that which is sold and bought. If there were to be a readjustment of income, the flow of debits and credits would have to be adjusted on some other basis; some would receive of credits in greater proportion and others would receive of credits in lesser proportion. The credits received and debits incurred by business organizations ultimately are transmuted into credits received and debits incurred by individuals. Credits are received and debits are incurred by the individuals constituting a nation. The credits received by all of the individuals of a nation cannot be considered as the income of the nation collectively.

In ordinary usage dividend is profit. Profit is obtained in greater or less degree and loss is sustained in greater or less degree as those engaged in production, buying and selling are efficient or inefficient in production and successful or unsuccessful in forecasting the demand for that pro-

duced. If there were to be readjustment of the so-called national dividend portions of the credits received as profit by the efficient would have to be awarded to the less efficient.

The national income can properly designate only the receipts of a nation as a nation, that is, of the national organization which obtains credits in the form of taxes. In the proper sense there cannot in this country be a national dividend because the receipts of the government of the United States are not obtained, with negligible exceptions, from the sale of utilities in the production of which debits have been incurred. Moreover, the government of the United States virtually never has a surplus of receipts over expenditures. In a different sense perhaps the national dividend could be considered to mean that benefit received by the people from the services performed for them by the governmental organizations which otherwise would not be performed so well or might not be performed at all. This is utterly different from the readjustment of the credits obtained as profit in production, buying and selling. From the credits so obtained are paid the taxes by means of which the governmental organizations are maintained. The more efficient the governmental organizations the smaller the proportion of credits thus received which will have to be paid for their maintenance, and the greater the proportion available for the production of utilities which meet the wants of the individuals constituting the nation.

This simple and incontrovertible fact is lost to the sight of those who advocate the nationalization of all industry, who hold that representatives of government elected by the people should administer the processes of production, buying and selling. Experience of the past has abundantly demonstrated that when the Government of the United States, of a state, or of a municipality undertakes and assumes the responsibility for processes of production, buying

and selling, loss has almost invariably been incurred. When an individual or a business organization incurs indebtedness which cannot be paid there is foreclosure and bankruptcy, credits are annihilated and the loss is concluded. When a governmental organization incurs indebtedness which it cannot otherwise pay there must be a levy of taxes which are a continuing burden upon the people until the indebtedness is paid. It follows that an organization engaged in production, buying and selling for profit ought not to have the power of taxation, and that an organization having the power of taxation ought not to engage in production, buying and selling for profit.

It has even been proposed that the incomes of all persons ought to be equalized. This has root in another conception of the past:—that inasmuch as all men are free and equal, they ought to participate equally in the goods of this world. The extreme form of the expression of this doctrine is that property is a crime.

It has especially been held by many that property in land is a crime, that land is properly the heritage in common of the human race which occupies it. The truth is that land is not of benefit to the human race unless it is utilized for its benefit. The more efficiently an area of land is utilized the greater will this benefit be served. In order that land may efficiently be utilized there must be the right to its utilization by those responsible for the result, who hope to secure profit but take the risk of loss.

It seems absurd to talk of the cost of production of land. But from time immemorial the structures erected upon land—roads, fences, drainage and everything so attached to it as to be impossible or impracticable of removal or of separate utilization—have been held to be part of the land. Thus land and what are designated as improvements are classified as real estate. There has been the cost of the

improvements and there have been the taxes. Therefore, it is not entirely anomalous to speak of the cost of production of real estate. The owner of real estate will endeavor not to sell it for less than its total cost to him, whether or not it has been "improved." In any event he will endeavor not to sell it for less than can be obtained for adjoining and equally available real estate.

As population increases, land once so remote as to be useless may yield profit if cultivated as a ranch or a farm. As centers of population develop contiguously, it may become available for residence. As it comes within the limits of town or city, it may be available for sites for manufacturing or mercantile establishments. The increases in the prices that can be obtained, as its situation causes it to be more and more available for that utilization by means of which greater and greater degrees of profit can be secured, have been designated "unearned increment," because the increased availability has been due to no effort of the owner. During these progressive increases in the price, however, property in the land has usually been transferred many times. It may have been bought from time to time by those who believed in its availability increasing in the future; that is, because of its potential availability. Their belief often is justified and often is not. Moreover, increased availability is frequently due in part at least to effort of the owner. For example, the remote and uncultivated land granted by the government to the projectors of railroads acquired availability because the railroads afforded facility for transportation that would not otherwise have come to it.

It is because of the facility for obtaining substance, or other forms of matter that are utilized, or employees, or marketing products that land becomes available for manufacturing sites. It is the contiguity of office buildings to

other office buildings between whose occupants, and between whose occupants and their patrons, there must be frequent intercourse, the convenience of banks, hotels, theaters, and retail establishments for the service of the greatest number of patrons, that cause the high prices of land whereon such buildings are erected. High prices would not hold were not profit obtained by those who so utilized the land, and they would not obtain profit were there not an intensity of demand for the utilities produced by means of that utilization. Therefore the so-called unearned increment applies not only to those who have property in the land, but to every one who obtains utilities produced by means of its utilization. The so-called unearned increment arises from interrelations between supply and demand which enable high profit to be obtained from its utilization. These interrelations may change. Because of mutations in the markets for products, the prices obtainable for manufacturing or mercantile sites may decrease. Streets once frequented by purchasers of means may become deserted. Thus land for which increasing prices have been obtained may so lose its availability that the owner, if he sell it, will be obliged to accept a lower price than he paid for it. Unearned increment may be transmuted into unearned decrement.

If all final utilities were distributed equally among all persons those who contribute the least to production would receive as much as those who contribute the most. As it is impossible to bring the productivity of the inefficient to an equality with that of the efficient, this would mean that the efficient would be brought to the level of the inefficient. Human nature is so constituted that this would mean the destruction of the incentive to the application of effort to the most effective results. It would mean a diminution in the volumes of utilities produced instead of an increase.

It is efficiency in production which results in increase in

the volumes of utilities produced. It is the attainment of profit which enables utilities to be produced in the greatest volume and variety. That the processes of production may be administered to this end, it is essential that they be directed by those with the capacity to achieve this end. The working of the interrelations between supply and demand in the normal course of industry and commerce, when they are not subject to injurious and hampering restriction, tends to this end. It tends towards the most efficient utilization of human effort, of land, of instruments of production and of substance, by those who are capable of such utilization. In order that their utilization may be effective they must have the right to use and to dispose of that which they utilize.

A widely entertained idea that there is undue disparity in the income of individuals is accentuated by a false conception of the transmutation of debits and credits. When, for example, it is said that a man is worth a million dollars many are apt to think that they are unjustly deprived because he has so much while they have so little. But when it is said that a man is worth a million dollars it does not follow that he has a million dollars in gold coin or other forms of what is known as money. He may have a fine residence adorned with rare and costly things, and a substantial balance to his credit in the bank, but in far greater proportion the million dollars will be represented by land, structures and instruments of production utilized in the processes of production. In that utilization is requisite the application of the effort of employees to whom wages must be paid and the incurring of debits for all requisite to the utilization which in greater proportion ultimately pass as wages for effort applied. The processes of that utilization result in the production of utilities which minister to the wants of innumerable persons. Of the credits received from

the sale of those utilities only a small proportion passes to him for his individual expenditure.

Likewise when it is said that a business organization does a business of so many thousands, or hundreds of thousands, or millions of dollars a year it is to be reflected that only a small portion of these credits pass to those who have property in the business organization. Vastly the greater proportion passes as debits for all that is requisite to the continuance of the production of utilities which meet human wants. The more efficient the individual, whether he apply his efforts in an individual capacity or in the service of a business organization, the greater will be the degree in which he contributes to the production of utilities which meet human wants, and therefore, the greater ought to be the credits which accrue to him for his individual expenditure. Those who hold that there ought to be an equal division of income, or through coercion a modification of the great disparity of incomes, consider what a man gets for what he does and overlook the importance of what he does for what he gets.

No one will deny that there are many and grievous defects in the present industrial and commercial organization. That organization as it stands is the result of a long evolution which has led to a marvelous advance in the material welfare of the peoples of civilization. Its improvement is to be attained through evolution, not through dissolution or the revolution which would mean dissolution. The period during which the only tools were of stone, during which man progressed from the use of stones of shapes that served his purpose picked up at random, to giving such stones rough edges, and finally to chipping and flaking them into more serviceable forms endured for nearly one hundred thousand years, culminating with the men of the Cro-Magnon about 15,000 years B.C. Then through a few thousand years man advanced in the use of bronze and iron,

smelted and wrought by hand. Until near the beginning of the 19th century there were few tools other than those used by hand. The present problems of labor and of capital have developed almost in their entirety within one hundred and fifty years, and they have become most acute within the last half century. The attention of the civilized world is to-day focused upon their solution. To their solution will be necessary a thorough inculcation of the principles which underlie the attainment of the greatest good for the greatest number, and a well ordered coördination of all persons in giving these principles application.

The social stigma that throughout centuries attached to those who engaged in industry and trade has passed. He who applies effort in any way that contributes to the welfare of others is entitled to the fullest consideration as a member not only of the political organization but also of the industrial and commercial organization and of the social organization. Employer and employee alike are under obligation to endeavor to attain that achievement which will conduce in the greatest degree to the welfare of the social organization. This means the welfare of the individuals which constitute that organization. Civilization means organization, that organization under which each does the best he can for the common welfare and under which he receives from the results of the effort of others that which ministers to his welfare in the degree that his efforts minister to the welfare of others. This means that every one should have the opportunity for doing the best he can. This opportunity should be accorded by employers to employees and by employees to employers. On the basis of a mutual understanding of the principles which conduce to the greatest good to the greatest number, there ought to be the mutual confidence that each is doing the best he can.

Of foremost importance is the understanding of all that

is designated as money. It must be recognized that money ought not to be and essentially is not something to the volume of which the volume of production, buying and selling must be adjusted, but that money in whatever form is an instrumentality for adjusting the flow of debits and credits in accordance with the buying and selling to which the interrelations between supply and demand give rise.

Juno was surnamed Moneta, the Mother of the gods. In or near the Temple of Juno was the Monenda, the mint from which issued the Roman coins. Juno Moneta, in line, contour and expression, was of surpassing beauty. It has ever been sought that coins be things of beauty. The images of the gods at the beginning were the concrete embodiment of the conception of the unseen forces that govern the actions of men. Coins in the beginning were the concrete instrumentality which adjusted the relation between man and man in the exchange of things produced by the force which emanated from the body and the brain of man. But the images of the gods which were no more than the handiwork of man came to be idols worshiped for themselves alone, and money which is no more than the handiwork of man came to be as an idol worshiped for itself alone. Through philosophy and science we have learned that the unseen forces which govern the actions of men are manifestations of the infinite and eternal energy which pervades the universe. Production, buying and selling are manifestations of the forces which emanate from the bodies and brains of men in enhancing the material welfare of the human race. The enhancement of material welfare contributes to intellectual and moral advancement as deepening and diffusing culture leads in increasing degree to the desire for that which makes life worth living. Money is an instrumentality by means of which the efforts of man are made of service to his fellowmen.

LI

THE ULTIMATE SIGNIFICANCE OF THE DOLLAR

THERE could not be the ministration of man unto man without the application of human effort. Accepting the dollar as typifying the unit by which the results of effort are exchanged there could not be that ministration without the dollar. There can be the rendering of kindly offices by one unto another for which dollars are not paid or received but the existence of those who render such offices and the existence of those to whom they are rendered must be maintained by the results of effort for which dollars have been paid and received. There can be the ministration of charity for which dollars are not received but that given in charity is the result of human effort for which dollars have been paid and received. Therefore, the dollar is a symbol of effort applied in the ministration of man unto man.

To the degree that human effort is applied to sources of substance in extracting and gathering substance, it is a symbol of the action and reaction of human effort upon the results of the action and reaction of cosmic force in the past. To the degree that human effort is applied in directing and controlling the growth of the plants and animals which serve human wants, it is a symbol of the action and reaction of human effort upon the action and reaction of cosmic force.

To the degree that human effort makes use of the power of the winds and the waves and the tides in serving human wants, to the degree that it directs and controls the generation and application of power through engines and ma-

chinery, it is a symbol of the reaction of human effort upon the action and reaction of cosmic force. As measures of human effort and of the cosmic forces generated, directed, controlled and applied by it are utilized in the transformation of substances into utilities which meet human wants and into utilities utilized in the processes of transformation the dollar is a symbol of the application by man to matter of the productive force emanating from man and of the productive force controlled, directed and applied by him.

The dollar is a symbol of the effect of human effort upon the forces and the matter in man's environment, in making them of service to human kind.

The intellect and the emotions are of different range and differing sweep in the nature of different men. The satisfaction obtained by an individual from the play of his intellect and of his emotions is above dollars, but his existence must be maintained by dollars and the diffusion of the embodiment of intellectual, moral and artistic impulse in ministration to other men is by means of the dollar.

Thus the dollar is a symbol of man's action and reaction upon his environment in the ministration of man unto man. It is a symbol that has acquired broadening and deepening significance as the human race has developed. The sublimity of the evolution of the human race kindled the soul of Hjalmar Hjorth Boyesen to expression in the lines reprinted here.

EVOLUTION

I

Broad were the bases of all being laid
On pillars sunk in the unfathomed deep
Of universal void and primal sleep.
Some mighty will there was, in sooth, that swayed

The misty atoms which inhabited
The barren, unillumined fields of space;
A breath, perchance, that whirled the mists apace,
And shook the heavy indolence that weighed
Upon the moveless vapors. Oh, what vast,
Resounding undulations of effect
Awoke that breath! What dizzying æons passed
Ere yet a lichen-patch the bare rock flecked!
Thus rolls with boom of elemental strife
The ancestry e'en of the meanest life.

II

I am the child of earth and air and sea!
My lullaby by hoarse Silurian storms
Was chanted; and through endless changing forms
Of plant and bird and beast unceasingly
The toiling ages wrought to fashion me.
Lo, these large ancestors have left a breath
Of their strong souls in mine, defying death
And change. I grow and blossom as the tree,
And ever feel the deep-delving earthy roots
Binding me daily to the common clay.
But with its airy impulse upward shoots
My life into the realms of light and day;
And thou, O Sea, stern mother of my soul,
Thy tempests sing in me, thy billows roll!

III

A sacred kinship I would not forego
Binds me to all that breathes; through endless strife
The calm and deathless dignity of life
Unites each bleeding victim to its foe.

What life is in its essence, who doth know?
 The iron chain that all creation girds
 Encompassing myself and beasts and birds,
 Forges its bond unceasing from below—
 From water, stone, and plant, e'en unto man.
 Within the rose a pulse that answered mine
 (Though hushed and silently its life-tide ran)
 I oft have felt; but when with joy divine
 I hear the song thrush warbling in my brain,
 I glory in this vast creation's chain.

IV

I stood and gazed with wonder blent with awe
 Upon the giant footprints Nature left
 Of her primeval march in yonder cleft;
 A fern-leaf's airy woof, a reptile's claw,
 In their eternal slumber there I saw
 In deftly-wrought sarcophagi of stone.
 What humid tempests, from rank forests blown,
 Whirled from its parent stem yon slender straw?
 What scaly creature of a monstrous breed
 Bore yonder web-foot through the tepid tide?
 Oh, what wide vistas thronged with mighty deed
 And mightier thought have here mine eyes descried!
 Come, a fraternal grasp, thou hand of stone!
 The flesh that once was thine is now mine own.

V

Sublime is life, though in beginnings base
 At first enkindled. In this clod of mold
 Beats with faint spirit-pulse the heart of gold
 That warms the lily's cheek; its silent grace
 Dwells unborn 'neath this sod. Fain would I trace
 The potent mystery which, like Midas' hand,

Thrills the mean clay into refulgence grand;
For, gazing down the misty aisles of space
And time, upon my sight vast visions throng
Of the imperial destiny of man.
The life that throbbed in plant and beast ere long
Will break still wider orbits in its van—
A race of peace-robed conquerors and kings,
Achieving evermore diviner things.

LII

MOTHER EARTH

BOYESEN's lines thrill with exultant hope. The continuing progress of civilization depends not only upon the race of the future, but upon what each generation bequeaths to that which succeeds it. All of man's achievement depends upon what he obtains from mother earth. Children ever regard their parents as the source of gratification of their desires. Even when children pass into youth they often prey upon their parents' resources in blind disregard of their limitations.

In an enclosure where survive a half-dozen animals of a species virtually annihilated by the hunter, a robust bison calf was engulfing nourishment from the udder of its gaunt mother. The mother bison tried in vain to dislodge the calf, finally edging him over to the fence where she shook him off. The sturdy cub squeezed out between his mother and the fence, ran to her other side, where he kicked the air in triumph at having baffled the strategy of his dam, and again applied his mouth to the udder. The patient resignation of motherhood was manifest in that emaciated beast as the calf continued to drain her strength.

It has been said that the decay of ancient races of Asia Minor was largely due to the exhaustion of the soil and a diminishing supply of water. Countries of continental Europe are obliged to resort to other lands for the nitrates requisite to maintain the fertility of their soil. As a population increases it draws in increasing degree upon other and sparsely settled lands, not only for substances foreign to

its soil, but for substances of kinds once produced by itself which enter into the things it uses and consumes.

The settlers who came from Europe to the western hemisphere found a continent marvelously rich in fertile soil, minerals, forests, waters abounding in fish and woodland abounding in game. Their descendants and those who have come from other lands have wrought sad havoc with these resources. The game has nearly all disappeared. Rivers and streams, polluted with the refuse of manufacturing plants, the offal of towns and cities, no longer swarm with fish, and poison has been found in the great fisheries of the Northwest. It is estimated that the supply of bituminous coal, indispensable to all production and to the comfort of the home, will be sufficient for centuries, but wastefulness in the mining of this coal has been shocking almost beyond belief. As beds of iron ore have been exhausted ore is brought from beds more remote and these in time will be extinct. The United States produces the greater proportion of the copper used throughout the world and may continue to do so for years to come, but not forever. As one field after another of the mineral oil of incalculable benefit in industrial and commercial progress is exhausted new fields are drilled but there is great uncertainty as to the length of time during which deposits of oil in the United States will be available. Quarries have been exhausted. Grazing lands have been so converted into farms that a portion of the meats consumed in this country have come from Mexico and South America. And yet it has been authoritatively stated that in an area embracing a half dozen states in the West and Southwest could be produced under scientific and intensive cultivation wheat sufficient to supply the needs of the entire world. Trees that bore nuts once abundant in every household have been killed with blight. The United States produces the greater proportion

of the cotton used throughout the world, but the boll weevil has diminished the yield of the plantations. Potatoes, the food of universal consumption, are infected with diseases, unknown a half century ago, which do not impair their edibility, but diminish their production. Fur-bearing animals throughout the world are approaching extermination.

Minerals cannot be replaced in their beds, but soil can be maintained in fertility. Forests can be replaced but the squandering of the woods of the United States without provision for reforestation and the ensuing impairment in the retention of the waterfall has been nothing less than a crime. One hundred years ago a governor of the State of New York said that if the forests continued to be denuded without reforestation, the time would come when the people of the United States would suffer for the lack of wood. That time has come; virtually the only forests that remain in this country are in the far Northwest.

The standing timber of the United States is being destroyed more than four times as fast as new timber is growing. The ensuing high prices for lumber are placing a handicap on farm development, upon the production of crops and livestock, are a burden upon the maintenance of the railroads, upon the manufacturers of furniture and the retail prices of furniture are increasing. Consumption of lumber in the construction of automobiles has diminished the supply for use in the making of vehicles and implements. The United States is becoming increasingly dependent upon foreign forests for a large part of the wood pulp it consumes. One great daily newspaper alone consumes 20,000 tons a year, the product of a century's growth of spruce forest on 7,500 acres. That is, its daily circulation consumes on an average the growth of a century on over 20 acres. To our grandparents lucifer matches were a luxury. To-day we burn the matches produced in millions

of boxes without a thought that in their making is consumed the timber from thousands of acres. The unparalleled impetus to industrial and commercial progress of fifty years ago brought enhancement in their material welfare that has led the people of the United States into an orgy of material production in which little regard has been given to the future.

Never before has so much scientific research and investigation been devoted to finding means for preventing and remedying the universal waste. The work of the scientist is heeded by many but not sufficiently to make it effective. As the great body of the population has advanced in material welfare, there has been an advance in the desire for amusement, entertainment and excitement. Vast numbers are disinclined to think and to heed the thoughts of the thinker.

Mother Earth has reason to be proud of many of her children but many of them are a disgrace. It has been said time without end, that it is not the quantity but the quality of the population that counts. The associations devoted to the study of genetics and eugenics are doing what they can toward ascertaining and diffusing knowledge as to ways in which the quality of the population may be improved.

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